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THE LANCET, JANUARY 3, 1920.

Bradshaw Lecture

ON

THE SURGERY OF THE HEART.

Delivered before the Royal College of Surgeons of England on Dec. 11th, 1919,

BY SIR CHARLES BALLANCE, K.C.M.G., C.B., M.V.O., M.S. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL, ETC.

MR. PRESIDENT AND GENTLEMEN,—It is my first duty and pleasure to acknowledge the honour conferred upon me by my colleagues in selecting me to deliver this lecture, the very title of which is evidence of the marvellous progress which the science and art of surgery has made during my lifetime. When I became a Member of this College the surgery of the heart did not exist. No surgeon had operated on the heart itself, though a few attempts to evacuate pericardial effusions had been recorded. A wound of the heart was considered by the ancients as surely fatal and this opinion was endorsed by the faculty. It has been pointed out, however, that "the great dramatic poets did not seem to attach a definite fatality to wounds of the heart, for they made their suicides kill themselves in other ways."[1]

HEART WOUNDS IN THE CLASSICS.

Suicides in tragedy sometimes hang themselves, but Ajax falls on his sword (he was always a feckless fellow). The narrative[2] is not quite clear, as his wife, who tells it, is naturally scared, and seems to have confused a sword with a spear; but he died at once with such a gush of blood at the nose that she covered him up with a cloak, for fear anyone else should see him; there was hæmorrhage from the wound too. His brother, Teukros, later on, says it was a sword, and he ought to know!

Ovid[3] writes: "Sanabit nulla vulnera cordis ope," and, unlike most of his references to the human heart, which deal with breakages rather than repairs, this line really refers to medical treatment, or rather to the impossibility of doing anything in a remedial way to heart wounds.

Celsus,[4] a contemporary of Ovid, gives the signs of a lingering death: "The heart being wounded, blood escapes in abundance, the pulse vanishes, there is extensive pallor, there occur cold and malodorous drops of sweat all over the body, the extremities become cold and death follows."

The special sign, that of movement of the weapon with the heart beat, was noted by Homer:[5] "And the hero, Idomeneus, smote him (Alkathous) in the midst of the breast with the spear. And he fell with a crash, with the lance fixed in his heart that, still beating, shook the butt-end of the spear."

"He fell, the spear point quivering in his heart,
Which, with convulsive throbbing, shook the shaft."[6]

The sudden death following the withdrawal of the penetrating weapon occurred to Epaminondas at the battle of Mantinea (B.C. 363):—

"At last, while he was most heroically exerting himself to gain the victory for his country he received a mortal wound in his breast by a dart thrown with such force that the wood broke and the iron remained in his body and he fell to the ground. And Epaminondas, yet living, was brought to the camp; and when the physicians who were sent for told him that he would certainly die as soon as the dart was drawn out of his body, he was not at all daunted; but first calling his armour-bearer he asked whether his shield was safe. The armour-bearer said it was and showed it to him. Then he enquired which side had won the day. The youth made answer that the Bœotians were the victors. 'Why, then,' said he, 'now is the time to die,' and forthwith ordered the dart to be drawn out, and so upon the drawing out of the head of the dart he quietly breathed his last."[7]

Again, Homer[8] narrates the story of the wounding of Sarpedon by Patroklos with a javelin "where the midriff clasps the beating heart." Sarpedon fell as falls an oak—"and from him Patroklos drew out his spear point and the life together." Sarpedon, addressing his friends when wounded, said:—

"Defend my body, conquer in my right
That taught by great examples, all may try
Like thee to vanquish, or like me to die."

He ceased—

"The insulting victor with disdain bestrode
The prostrate prince, and on his bosom trod;
Then drew the weapon from his fainting heart,
The reeking fibres clinging to the dart.
From the wide wound gushed out a stream of blood;
And the soul issued in the purple flood."

Nowadays we should take measures by exposure of the heart, &c., to prevent hæmorrhage when the missile or weapon was withdrawn, though it does not seem very long ago that the withdrawal of a file from the Austrian Empress's heart ended in sudden death (September, 1898).

HEART WOUNDS IN EARLY MEDICAL LITERATURE.

Riolanus[9] (1649) less than 300 years ago opens his chapter on the heart with these words:—

"The heart is the chief and most noble organ in the body. It is the source of that life-giving nectar by the influx of which the vitality of each part of the body is renewed and cherished. The organ which is the first to be born and the last to die, and through which all other parts of the body live and move and have their being."

Other authors of this period use much the same language. Ambrose Paré[10] (1691) writes:—

"The heart is the chief mansion of the soul, the organ of the vital faculty, the beginning of life, the fountain of the vital spirits, and so consequently the continual nourisher of the vital heat, the first to live and the last to die."

Paul Barbette[11] (1687), of Amsterdam, a contemporary of Ambrose Paré, writes as follows:—

"Wounds of the heart are always mortal and those that penetrate into the left ventricle kill suddenly. Those so wounded seldom live above 6, 12, or 20 hours, although there are examples produced to the contrary. A wound in the right ventricle permits the patient to live longer, and one which terminates in the substance of the heart grants yet longer time."

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[1] Fischer: Arch. f. Klin. Chir., 1868, Bd. ix.

[2] Sophocles, "Ajax," 22,898 ff.

[3] Epistolæ ex Ponto I., iii., 17-26:—
"Non est in medico semper, relevetur ut æger;
Intercum docte plus valet arte malum.
Cornis ut e molli sanguis pulmone remissus
Ad Stygias certo limite ducat aquas.
Adferat ipse licet sacras Epidaurius herbas;
Sanabit nulla vulnera cordis ope.
Tollere nodosam nescit medicina podogram;
Nec formidatis auxiliatur aquis.
Cura quoque interdum nulla medicabilis arte,
Aut ut fit, longa est extenuanda mora."

[4] V. 26 (8).

[5] Iliad XIII., 442, translated by Lang, Leaf, and Myers, p. 259.

[6] Lord Derby's translation.

[7] Diodorus Seculus (B.C. 40) translated by Booth, Book xx., Chap. x., p. 69.

[8] Iliad XVI., 585–625 (Pope's translation).

[9] Cap. 8. Cor est viscus primarium et nobillissimum totius corporis, fons nectaris vivifici cujus influxu vitalitas singularum partium recreatur atque fovetur; quod primum nascitur, et ultimum moritur, cujus beneficio vivunt et subsistunt omnes corporis partes.

[10] The Works of Ambrose Paré, p. 95.

[11] The Surgical Works of Paul Barbette, 1687, p. 174.

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Cabriolanus[12] (1604) mentions a case in which he found a scar and another in which he found an unhealed wound in the heart. He agrees with Fernelius that the heart can suffer a solution of continuity without death ensuing; and, he adds, lest anyone should think that these heart lesions were the cause of death, that both those persons were hanged.

Tourby,[13] in 1642, did an autopsy on a man who, four years previously, had had a sword-thrust in the chest which caused a wound of the heart near the apex; the evidence of which was a cicatrix that could be demonstrated to all present.

In the succeeding centuries there is little to note till the time of Bonetus[14] and Morgagni.[15] They established two facts: (1) That wounds of the heart were not necessarily immediately fatal; (2) that a sudden effusion of blood into the pericardium arrested the heart's action.

Bonetus relates the case of a young man, aged 24, who bravely sustained an attack by seven others, but was at length wounded by a sword-thrust. He survived five days. There was a wound of the left lung and of the right ventricle of the heart.

Morgagni compares two cases of heart wound. In one there was a free opening in the pericardium and the blood escaped freely externally. This case lived eight days. In the other the blood was retained in the pericardium and the patient died in a few minutes. He points out that the second case did not die from hæmorrhage, but from pressure on the heart. Thus, a hæmorrhage within the pericardium is much more quickly fatal than a hæmorrhage in most other places, even though it be far less in amount.

Interesting cases of heart injury abound in literature. A few may be quoted:—

1. Ambrose Paré thus describes a case: "When I was in Turin I saw a certain gentleman who in a duel received a wound under his left breast which pierced into the substance of the heart; yet for all that he struck some blows afterwards, and followed his flying enemy some 200 paces, when he fell down dead upon the ground. Having opened the body I found a wound in the substance of the heart so large as would contain one's finger. There was much blood poured forth upon the midriff." (Query: Did the gentleman die of auricular compression?)

2. A pointed piece of stick was found in a pig's heart. The swineherd stated than more than six months previously he had prodded the unruly animal with the stick he used for driving his pigs.[16]

3. A boy in 1834 lived five weeks and two days after a gunpowder explosion, which blew a piece of wood into his chest. At the post mortem a piece of wood 3 inches long and as thick as a cedar pencil was found in the right ventricle.[17]

4. A man, aged 50 years, died in hospital in 1825. Nine years previously he was wounded by a knife thrust into the left side of the chest. The edges of the pericardial wound were adherent to the chest wall and a firm fibrous cicatrix was found going through the whole thickness of the right ventricle in a line corresponding to the wound of the pericardium.[18]

5. In 1827 a medical student in Paris was stabbed in the left chest. (He came under the care of Dupuytren.) A jet of blood, as large as a pea, and air came from the wound. The flow of blood increased when the patient groaned. He recovered in 28 days. The treatment was mainly by bleeding.[19]

Dupuytren's advice in these and similar cases was to go on bleeding as often as the pulse revived and only to leave sufficient blood to keep the patient alive. This recommendation reminds one of Dr. Sangrado in "Gil Blas." He believed that it was a mere vulgar error that the blood was of any use to the system—according to him, the faster you draw it off the better. Sangrado despatched business so fast that the fraternity of notaries who made wills in Valladolid in his time found half their jobs spoiled as they could not keep pace with him. The difference between the great French surgeon and the charlatan Sangrado is obvious. Depuytren's case recovered, but no patient of Sangrado's was ever known to do so! For "Mere prattle ...... was all his soldiership."[20]

We may conclude, then, that in wounds of the heart a free external hæmorrhage is less dangerous than a sudden filling of the pericardium with blood. Wounds of the heart, too, under some circumstances do not allow the continued escape of blood. They close and heal as do certain wounds of the great arteries.

Mr. Mansell Moullin showed a case at the Clinical Society in 1897.[21] The man had received a severe blow from the point of an elbow on the third left costal space in a football match. Twenty-five days later, when the patient was in extremis, the pericardium was opened in the left fifth costal space, and a drainage-tube was inserted. In three hours six pints of thin dark fluid escaped through the drainage-tube. This case was one of rupture of the heart without external wound, and slow accumulation of blood in the pericardial cavity occurred. In the same volume of the Clinical Society's Transactions a case of punctured wound of the right ventricle is narrated by Mr. W. G. Spencer.[22] There was considerable external hæmorrhage on the eighth and seventeenth days. Death occurred on the seventy-ninth day. There was a healed wound of the wall of the right ventricle, which was adherent to the scar in the pericardium.

ATTITUDE OF NINETEENTH CENTURY DOCTORS ON HEART SURGERY.

Remarks of well-known surgeons and physicians of the nineteenth century showing that surgery of the heart itself was considered a hopeless matter down to quite recent years.

Guthrie[23] writes:—

> "London, the great metropolis of the British Empire, with its 2,000,000 of inhabitants has been nearly exempt from injuries of the heart. There is not at the present moment a surgeon of any of its largest hospitals who has seen or recollects a case of recovery after a wound of the heart, either in his own practice or in that of his colleagues or predecessors. They have rarely seen a case brought to them alive for treatment, sensible people not being disposed to stab each other, while madmen try to kill themselves in a different way."

Sir Thomas Watson[24] writes:—

> "If the patient is in danger of perishing from the amount of the pericardial effusion the *ultimum remedium* of tapping the distended bag must be adopted. The puncture should be made with a fine trocar after a preliminary incision of the skin through the inner end of the fourth left intercostal space. I have never seen this done nor met with any case in which it appeared to be demanded; but it has been done with great present relief to the patient."

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[12] Alphabeticum Anatomaken, Obs. 26 (1604).

[13] Quoted from Jamain des Plaies du Cœur (loc. infra cit.).

[14] Sepulcretum Lib. N. Add., Obs. 3, 1700.

[15] De Sedibus et Causis Morborum, Ep. 53 (3), and 63 (4 and 5), 1730.

[16] Quoted from Jamain des Plaies du Cœur. Thèse de Paris, 1857. Ref. given Hen. ab. Heers Obs. Med. Lib. 1, p. 110, 1647.

[17] Trans. of Prov. Med. and Surg. Association, 1834, ii., p. 357.

[18] Velpeau: Traité de Anat. et Chir., 2nd edition.

[19] Samson: Thèse de Paris, 1827.

[20] "Othello," Act I., Scene I.

[21] Clin. Soc. Trans., vol. xxx., p. 217.

[22] Clin. Soc. Trans., vol. xxx., p. 2.

[23] Lectures on Some of the Most Important Points in Surgery, Part III., p. 50, published 1848.

[24] Lectures on the Principles and Practices of Physic, 5th edition, 1871, p. 357.

Billroth,[25] who was certainly not a timid surgeon, wrote (circa 1875):—

> "Paracentesis of the pericardium is an operation which, in my opinion, approaches very closely to that kind of intervention which some surgeons would term a prostitution of the surgical art and others madness. It is only to remove from this section the reproach of being incomplete that we mention this operation, which has more interest for anatomists than for surgeons. Perhaps a later generation will think otherwise about it. Treatment is becoming more and more surgical, and those most deeply concerned in the practice of internal medicine make plans for the boldest operations."

Legouest[26] says:—

> "It might be thought that nothing would be of greater interest than the study of wounds of the heart, but, in fact, there is nothing of less practical interest. A few curious but authentic facts, others more or less doubtful, an uncertain symptomatology, a treatment all but hopeless, an ending almost always fatal, such is a summary of the impression resulting from a study of wounds of the heart."

Riedinger[27] in 1888 wrote:—

> "The suggestion to suture a wound of the heart, though made in all seriousness, scarcely deserves mention."

From the time of Morgagni onwards clinical and pathological observations and records became more accurate, and the symptoms and lesions of injuries and diseases of the heart gradually became better known.

The paper published by Fischer[28] in 1868 marks the close of this period. It is an admirable clinical and pathological record, but lacks any serious suggestions for surgical treatment.

While the opinion prevailed that arrest of the function of the heart would follow surgical interference with this organ, and so long as the ancient reverence attaching to the tissues of the heart prevented lesions of the heart being treated on ordinary surgical principles, it was natural that no one suggested that wounds of this organ should be sutured.

It is scarcely 20 years ago that surgical measures found a definite place in the treatment of injuries and diseases of the heart.

WOUNDS AND DISEASES OF THE HEART.

Besides wounds inflicted by cutting instruments and bullets, and traumatic ruptures of the heart, the heart may be the site of aneurysm from disease. There are several such cases recorded in literature.[29] Traumatic aneurysm is the cause of secondary hæmorrhage in wounds of the heart as it is in wounds of the great arteries, especially in cases of pericardial sepsis. Cases of suture of the heart that are apparently doing well for many days or longer, and then die of secondary hæmorrhage into the pericardium, are cases of rupture of traumatic aneurysm of the heart.

Case of Cardiac Aneurysm.[30] A man had been wounded 10 years before his death by a knife-thrust to the left of the sternum. A cardiac murmur had been audible since the injury. He gradually recovered from the wound and felt no inconvenience until a few weeks before his death.

Autopsy: Heart enlarged, universal pericardial adhesions. Through the pericardium a hard, prominent substance could be felt in the wall of the right ventricle. The pericardial adhesions could be separated everywhere but over this swelling. The hypertrophy of the heart affected chiefly the left ventricle, the cavity of which was elongated and expanded. On the inner aspect of the wall of the right ventricle was an opening through which the little finger could be passed into a cavity as large as a walnut, at the bottom of which was felt a hard nodular body. The sac proved to be an aneurysm of the heart, the wall of which was entirely formed by the fused layers of the pericardium and contained no muscular fibres. In the sac was a hard fibrinous clot. Opposite the opening of the aneurysm into the right ventricle was an opening in the septum leading into the left ventricle.

A wound of the trunk from a bayonet or lance is not often seen in hospital. The reason is that such wounds are so serious that the soldier seldom survives. Guthrie[31] gives another reason for these wounds being uncommon. After describing bayonet and lance wounds, he continues:—

> "Opposing regiments, when formed in line, and charging with fixed bayonets never meet, and struggle hand to hand, foot to foot, and this for the very best possible reason that one side turns round and runs away as soon as the other comes close enough to do mischief, doubtless considering that discretion is the better part of valour. Wounds from bayonets were rare in the Peninsular War. It may be, that all those who were bayonetted were killed, yet their bodies were seldom found. Small parties of men may have personal conflicts after an affair has been decided; or in the subsequent scuffle if they cannot get out of the way fast enough. The battle of Maida is usually referred to as a remarkable instance of a bayonet fight; nevertheless, the sufferers, whether killed or wounded, French or English, suffered from bullets, not bayonets."

EXPERIMENTS ON THE HEART OF ANIMALS.

The most important observation was made by Morgagni in his De Sedibus et Causis Morborum that a puncture of a coronary artery on the external surface of the heart might cause such an amount of hæmorrhage into the pericardium as to compress and arrest the heart. This was the first indication that surgical exposure of the pericardium and the evacuation of the fluid within it might relieve the heart from compression.

There have been many surgeons during the last 150 years (including Baron Larrey,[32] Napoleon's surgeon) who have endeavoured by experiments on dogs to discover why wounds of the heart were fatal and how death could be prevented.

Between 1882 and 1895 the surgeon experimenters discovered (1) that blood effused into the pericardium must be removed because it embarrassed the action of the heart, and (2) that a wound into the cavity of the ventricle of the dog's heart could be successfully sutured.

The first successful experiment of making a wound in the heart of an animal and then closing the wound by suture was performed by Del Vecchio[33] in 1895 and he suggested the method that should be adopted in operations on man.

Remarks from Del Vecchio's paper. As a result of experiments on dogs he concludes that suture of the heart of man in cases of wound is possible. At the Congress of Rome (1894) he showed a dog in which a penetrating wound of the ventricle had been sutured successfully with catgut. The dog was killed on the fourth day. There is a special difficulty in dogs as the pleura must be opened. He proposes removal of the fourth, fifth, and sixth rib cartilages in man. The pleura is to be pushed on one side, then the pericardium incised, blood and blood clots removed, and the wound in the heart sutured. Death may be caused by the pressure of the blood in the pericardium, but this pressure also checks the bleeding which is liable to recur fiercely as the intra-pericardial pressure disappears.

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[25] Quoted from Rose. (Deutsche Zeitschrift für Chirurgie, vol. xx.)

[26] Dict. Ency. des Sciences Med., 1re Serie T., xviii., p. 684, 1876.

[27] Quoted from Borchart's paper, Sammlung Klin. Vorträge, Neue Folge Chirurg., No. 113, 114, 806.

[28] Langenbeck's Archiv., vol. ix., 1868.

[29] See p. 315, "Ligation in Continuity." Specimen in Guy's Museum. Also THE LANCET, August 2nd, 1919. The patient died of rupture of the aneurysm into the pericardium.

[30] Quoted from G. Fischer Langenbach's Archives, vol. ix. Ref. given, Gaz. Med. d'Orient, Sept. 6th, 1860.

[31] Commentaries on the Surgery of the War in Portugal, Spain, France, and the Netherlands, fifth edit., 1853, pp. 35, 36, and 37.

[32] Clinique Chirurgical, ii., 284, and Clin. Chir., i., 319.

[33] Sutura del Cuore, Riforma Med., 1895, 79–80. Also B.M.J., June 1st, 1895, Epitome, par. 417.

These experiments were confirmed by Salomoni of Messina,[34] who also experimented on dogs. A wound was made in the left ventricle and then sutured, and the dogs when killed after healing had taken place, presented only a pericardial adhesion at the site of injury. These successful experiments stimulated surgeons to attempt suture of the heart in man. Farina,[35] Cappelen,[36] and Rehn [37] were first in this operative field. Thus commenced a new and wonderful advance in surgical practice.

In dogs the different great vessels can be compressed during operation, keeping the heart empty and the operation bloodless. "The same expedient might be employed in man."[38] The pulling forward of the apex of the heart by a fixation stitch will, to some extent in man, kink the great vessels and so effect the same purpose.

Rehn has proved experimentally that the most effective way to obtain hæmostasis in heart suture is by grasping the root of the heart on a level with the right auricle and compressing the vena cavæ at their entrance into the auricle.

The late Sir Lauder Brunton[39] published a preliminary note on the possibility of treating mitral stenosis by surgical methods. He suggested that a mitral stenosis could be transformed by a surgical operation with benefit to the patient into one of mitral insufficiency or regurgitation. Cushing and Branch[40] reported some experiments on this question. Bernheim[41] in 1909 established experimentally a condition of mitral stenosis in dogs by means of inserting sutures. He later relieved this artificially-produced stenosis in the animal by establishing at a second operation a condition of mitral insufficiency. As superior to drainage, he left a small gap in the pericardium unclosed for the escape of exudation.

"Not only can lesions of individual valves be produced without immediately fatal consequences to the animal, but the survival of the animal is sufficient to permit a careful study of the primary and secondary disturbances of the circulation which closely imitate the same phenomena caused by cardiac disease in man. Obstructive and regurgitant lesions of the aortic pulmonary mitral and tricuspid valves and septal lesions imitating congenital deficiencies can now be systematically produced in the laboratory."

"Though the surgeon may not be able to profit immediately by these brilliant laboratory accomplishments in cardio-valvular surgery, they show that with proper methods and with a comparatively simple technique successful intracardiac surgery in man is possible."[42]

For the present it is sufficient to affirm the obvious fact that without the successful experiments on the suture of a wound of the dog's heart the suture of a wound of the heart of man would never have been an accomplished fact.

Farina's case. Farina sutured a wound in the left ventricle of a man, and the patient lived several days.

Private Letter to Sir John Bland-Sutton from Dr. Guido Farina, December, 1909.

"The first case of surgical interference on the heart which I had the opportunity of performing was carried out in March, 1896, at the Spedala della Consolazione. The patient was a man 30 years of age, who received a blow from a very fine and sharp dagger in the fifth intercostal space in the parasternal line. The wound penetrated to the cavity in an oblique direction from above downwards and from without inwards. It wounded the pericardium and penetrated into the ventricle. The wound in the myocardium was about 7 mm. long. I removed the fifth costal cartilage and a bit of the rib for about 15 cm. Then I strongly retracted the fourth and sixth costal cartilages. I arrived on the wounded heart. I sutured the wound with three silk sutures, and between these particular points I placed two others of less importance. Everything went well till the fifth day, when a violent broncho-pneumonia declared itself on the right side and in three days killed the patient. The thoracic wound healed by primary intention.

At the autopsy the wound in the heart was found perfectly healed. The heart was not allowed to be preserved for further study. It was precisely because of my irritation at this fact that I have not published any communication on this interesting case."

Cappelen's case.

A man, aged 24, received a stab wound in the left side some hours before admission. He went home alone, and about an hour afterwards was found lying in a pool of blood. On admission he was unconscious, but the heart sounds could be heard though he was pulseless. A punctured wound was present in the fourth left interspace in the mid-axillary line. He improved with a camphor injection.

Operation.—Wound enlarged, fourth rib resected. Pleural cavity filled with blood, 1400 c.cm. The lung was not wounded; 5 cm. of the third rib then resected. Wound of pericardium, 1 cm., was then seen; this was enlarged, and the blood and clot in pericardium removed. The wound in the pericardium being enlarged and the blood and clots in the sac removed, a wound 2 cm. long was seen in left ventricle. The wound was sutured and a bleeding artery on the heart tied. Patient lived 2½ days. Septic pericarditis was present.

Rehn's case.

The patient was exhibited 14 days after the operation. The man had been stabbed with a table knife; and there was bleeding from the wound, and signs and symptoms of distension of the pericardium. On the day following the injury, Rehn removed the blood clot from the pericardium as well as from the left pleural cavity. He also inserted sutures into the wound in the wall of the heart, and afterwards closed the opening in the pericardium and chest wall except for drainage. On the fourteenth day the patient was recovering well.

Treatment of Wounds of the Heart in Ancient Times.

To arrest hæmorrhages and to arrest or prevent infection are still, as in the days of Celsus, the two dominant indications in the treatment of surgical injuries. The means for preventing infection are considerably elaborated at the present day, but were not wholly unknown to the ancients.

The prevention or arrest of sepsis is the crucial factor in the treatment of wounds of the heart. The cases recorded in the Daily Review of Foreign Literature (March 18th, 1918) illustrate this point.

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[34] XI. Italian Congress of Surgery, 1896.

[35] Private letter to Sir John Bland-Sutton, B.M.J., May, 1910.

[36] B.M.J., May 23rd, 1896; l'Epitome, par. 81.

[37] Centralblatt f. Chir., 1896, 1048.

[38] Warbasse, Surgical Treatment, vol. ii., 1918, and R. Haecker, Archiv f. Klin. u. Chir., Band lxxxiv.

[39] THE LANCET, 1902, vol. ii.

[40] Journal of Medical Research, 1908.

[41] Johns Hopkins Hospital Bull., 1909.

[42] Matas: Ibid., p. 47. Ricketts published a work on "The Surgery of the Chest" in 1918. Chapter XI. is a review of the experimental surgery of the heart. He describes the following operations: valvotomy, valvectomy, valvoraphy, and valvopexy.

In early times wine and honey were used as a dressing for wounds. The good Samaritan poured in oil and wine. In Indian surgery ghee and honey is a common application. The value of honey for this purpose is probably due to its containing formic acid.[43] The Greeks made use of warm water and a "bitter root[44] crumbled in the hand," which "stayed the pain and dried the wound." The bitter root was probably peony, which still grows wild in Macedonia and is still used as a styptic.

Homer describes how a colonel, R.A.M.C., in the Greek army, Eurypylos by name, received a big flesh wound from an arrow in the thigh. The sweat ran down streaming from his head and shoulders, and from the cruel wound the black blood was welling. He was limping out of the battle when Patroklos came to the rescue:—

> "There stretched at length the wounded hero lay;
> Patroklos cut the forky steel away.
> Then in his hand a bitter root he bruis'd;
> The wound he washed, the styptic juice infus'd.
> The closing flesh that instant ceas'd to glow,
> The wound to torture, and the blood to flow."[45]

The Greeks in the Persian wars were far less equipped for the treatment of wounds than the Persians—e.g., the story of Pythos,[46] who was made into "butcher's meat" in a sea-fight, but was patched up by the Persian surgeons: "healing his wounds with myrrh and other herbs, and covering them all up in shield-slings or rolls of silky or fine linen." This is, I believe, the first authentic mention of a surgical bandage. The modern Greeks use ladanum[47] for wounds; it is the natural gum of a cistus or some such plant, dark green and smelling like Stockholm tar. My brother-in-law, Professor Myres of Oxford, held the rank of Commander R.N. during the war. He wrote to me of this cistus juice: "If I were a bacterium I should encyst at the sight of it! ...... I have tried it."

There is an impression that there was far less tendency for battle wounds to be septic in ancient than in modern times.

> "The difficulty of real knowledge of ancient things lies largely in the accident of our remoteness. We stand very far off, and have to strain our eyes. For us the comparison of ancient and modern is largely a comparison of something half seen at a distance with something which we know intimately ...... we see only the bold outlines ...... we are apt to miss the little lights and shades ...... we have not the knowledge or the sympathy to catch, across the gulf of years, the peculiar thrill of what was once a 'winged word' flying from soul to soul."[48]

Ancient and modern Greek weapons were, and are, cleaned with sand and sharpened on any convenient whetstone, such as a sandstone bridge-coping, or a sandstone well-head. We know that friction will sterilise a knife. Poisoned weapons were not thought fair in later Greek warfare. There were certain moral influences during the rise of the Greek Epic which ruled out poison in decent fighting. The fruit of the rise of another type of "kultur" in our own time was the introduction into warfare of poison gas and liquid fire.

> "The Iliad is full of battles and of battles fought with extraordinary fire. Yet the spirit of them is not savage. It is chivalrous. No enemy is ever tortured. No prisoners, with one exception, are ever maltreated."[49]
>
> "There is no doubt that the primitive inhabitants of Greece used arrows. The very word for poison means "belonging to an arrow." The arrows of Heracles in Hesiod had on the front of them—death and trickling drops. ...... Now in the Iliad poison has been completely cleaned off the arrow heads. Poison is treacherous, ungentlemanly; a weapon for low barbarians, not for heroes."[50]

"Greek poetry," writes Professor Murray, "was the embodiment of a force making for the progress of the human race. By progress I understand some gradual ennobling and enriching of the content of life—some movement towards the attainment of that "chief end of man," which is, according to the magnificent definition of the document known in Scotland as the "Shorter Catechism," "to glorify God and to enjoy him for ever."[51]

Barbed arrows—and Greek arrows were usually barbed—cannot be cleaned properly by the soldier. Most Oriental arrows were merely leaf-shaped and would be much more cleanly. The poison, when used on arrows, was probably obtained from the yewberry.[52]

There are some lurid septic details in Sophocles—e.g., the wound of Philoktetes, made by a poisoned arrow, ulcerated and caused an intolerable smell and intolerable pain, while the moanings of the hero so alarmed his companions that they shipped him off in a hurry from the Straits to Mudros. The medical service was lamentably defective; the patient was simply dumped on the beach with some "rags" and "iron rations"—just whatever they had! The remedy was as bad as the disease: little water, no food, no fuel, a dish of raw pigeons if you could hit them. The only people that were good to him were some V.A.D. nymphs from the water meadows!

The surgeon of to-day, looking over the works of Hunter and his immediate successors, cannot fail to be struck with the small place that surgical intervention then held in the treatment of disease and even of emergencies. The resources of surgery 100 years ago in dealing with the lethal consequences of disease and injury was so limited that the contrast with the present time is evidence of a wonderful evolution in our science during the last 40 years.

(*To be continued.*)

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[43] A. Vogel found in crude honey 0·1 per cent. formic acid in 1882.

[44] "As to the bitter root being peony this, of course, is possible. The well-known red peony of the gardens is *Pæonia officinalis*. It is native in South Europe. Commercially as a drug it is stated the bark is usually removed from the root, leaving the root in colour purplish and whitish. It has an acrid taste and distinct odour when fresh of bitter almonds. As a suggestion it occurs to me that the bitter root might be from the barberry or even gentian" (letter from Mr. Martindale).

[45] Iliad XI., 963 et seq. (B.C. 900). (Pope's translation.)

[46] Herodotus VII. 181 (B.C. 455).

[47] Ladanum is synonymous with labdanum. It is an extract from *Cistus creticus*. It is obtained from countries bordering the Mediterranean. The substance is gathered either by whipping the plants with leather thongs to which it adheres or by collecting it from the wool of sheep which have been made to travel among the plants. It occurs in dark brown masses or lumps. The heat of the hand is sufficient to soften it. It is almost completely soluble in spirit (letter from Mr. Martindale).

[48] The Rise of the Greek Epic. Gilbert Murray, 2nd edition. 1912, p. 27.

[49] Gilbert Murray: Ibid., p. 145.

[50] Gilbert Murray: Ibid., pp. 148–149.

[51] Gilbert Murray: Ibid., p. 21. Additional remarks by Professor Gilbert Murray: "Hellenism was always in an uphill war against Paganism in the questions of human sacrifice, cruelty, slavery, the subjection of women and immorality" (p. 15). "Greek civilisation rose from the swampy level of the neighbouring peoples. Every Greek community is like a garrison of civilisation amid wide hordes of barbarians. Hellenism was represented everywhere by a handful of men holding an outpost, men who wrought their wonderful day's work in political and moral wisdom, in speculation, in beauty of outward form and inward imagining; with an ear ever open to the sternest of life's calls, and the hated spear and shield never far out of reach" (pp. 30-31).

[52] Yewberry (*Taxus baccata*). "Taxine, the alkaloid extracted from the leaves and berries, depresses the action of the heart in frogs, rabbits, cats, and dogs. It interferes with respiration and causes death in a short time through suffocation." Thorpe's Dictionary of Applied Chemistry, vol. v., 1913.

A Lecture

ON

THE AIMS OF THE WELSH NATIONAL MEDICAL SCHOOL.

WITH SPECIAL REFERENCE TO PREVENTIVE MEDICINE.

"FINEM RESPICE."

Being the Inaugural Lecture of

EDGAR L. COLLIS, M.A., M.D. OXON., M.R.C.S.,
MANSEL TALBOT PROFESSOR-DESIGNATE OF PREVENTIVE MEDICINE, UNIVERSITY OF WALES (LATE DIRECTOR OF WELFARE OF HEALTH, MINISTRY OF MUNITIONS AND H.M. MEDICAL INSPECTOR OF FACTORIES).

GENTLEMEN,—Three thoughts have influenced the choice of my subject to-day: 1. I form part of the Welsh National School of Medicine, whose name as a school is a great and ambitious one, unique among the medical schools of the United Kingdom. He who bears a high title, bears also concomitant cares and responsibilities—*atra cura sedet post equitem*. The title in the present case carries with it responsibility for educating and training in the best possible way those who, in the future, must hold in their hands the health of the Welsh nation. 2. The immediate future is to see the school reorganised and expanded, at a moment when the whole question of the teaching of medicine is receiving the most serious consideration; when doubts are openly expressed as to the efficacy of the scheme of training which has prevailed up to the present; when the health of the whole nation is being taken charge of by the new Ministry of Health; and when new knowledge of the human body in relation to health and disease is crowding in upon us. Serum-therapy, radiology, radiography, balneology, ionisation, dietetics, eugenics, osteopathy, to name only a few, all cry aloud to be included in a curriculum already overloaded with organic chemistry, anatomy, physiology, bacteriology, pathology, pharmacy, midwifery, gynæcology, surgery, curative medicine, the special departments of eye, ear, throat, and skin, lunacy, and fevers, and the great field of public health administration. 3. I personally am undertaking a heavy responsibility in that to-day I am the first occupant of the only chair in the kingdom devoted entirely to the subject of preventive medicine. There is no tradition to guide, no precedent to refer to; all must be wrought *de novo*. These three ever-present thoughts have directed me to fix the title which appears at the head of these remarks.

THE RISE OF MEDICAL SCHOOLS.

University schools.—The history of medical schools shows that they came into existence on no ordered plan. In the Middle Ages there were at such ancient seats of learning as Oxford, Cambridge, or Padua schools of medicine, where some famous physician presided over a band of students who came to sit at his feet. How he taught and what he taught, with no laboratories and no hospital beds, we can have but little idea. We can but suspect that many a practitioner of those days, looking back on his student times, must have thought:—

> "Myself when young did eagerly frequent
> Doctor and Saint, and heard great argument
> About it and about: but evermore
> Came out by the same Door that in I went."

Be that as it may, we can see that the trend of teaching must have been to the philosophic and more scientific side of medicine. Even to-day we see this tendency perpetuated. Oxford and Cambridge treat medicine essentially as a science; they lay down a scientific rather than a utilitarian groundwork; they deal only with preliminary subjects, and treat anatomy and physiology as pure sciences. Then the student passes away to learn the technique of his profession at one of the great hospitals. There, although the method of his training must persist, he is inclined to leave the sciences behind him as "Something accomplished, something done"; and opportunity is lacking for him to return again and again to the familiar laboratories and to his teachers for light and leading in the interpretation of the new facts he is being called upon to absorb.

Hospital schools.—At the same time as certain institutions, such as those of St. Bartholomew and St. Thomas, originally started as hostels for the poor, came to be devoted to dealing with the sick, hospitals as we know them to-day began to emerge. They were attended by physicians and later by surgeons (for I must remind you that surgery was, until the end of the eighteenth century, looked down upon by physicians and left to the barbers); these men had attached to them apprentices, the prototype of the medical student of to-day; and the system which existed can fairly be compared with that of the trade guilds and their apprentices. Many physicians, in no way connected with hospitals, also had their apprentices, just as lawyers to-day have their articled clerks, and hospital training was not a necessary part of the student's career. You may recall how, in 1811, the poet Keats was so apprenticed for five years to Mr. Thomas Hammond, a surgeon and apothecary of Edmonton; and bound himself "not to haunt taverns or playhouses, not to play at dice or cards, nor absent himself from his said master's service day or night unlawfully, but in all things as a faithful apprentice to [he shall] behave himself towards the said master and all his during the said term." After 3½ years Keats left Hammond and joined St. Thomas's and Guy's before becoming a Licentiate of the Society of Apothecaries. This apprenticeship system continued well into last century, and there are still doctors at work to-day who in their time served as apprentices. An excellent picture of how the medical student of the first half of nineteenth century carried on his work is to be found in Samuel Warren's book, "The Diary of a Late Physician," wherein is vividly described how one part of his duties was carried out—the resurrecting of a body for anatomy purposes in pitchy darkness on a cold night amid drenching rain; the details are realistically gruesome. But there is no elegy by Keats of such a churchyard scene. Perusal of this chapter must make every student of to-day thankful for the Anatomy Act, and prevent him from being a *laudator temporis acti*.

At the hospitals after a time, as the necessity for more scientific training became obvious, instruction in the preliminary sciences was arranged. But, with few exceptions, the university outlook has not been attained; and the training, although taking less and less notice of minor complaints and of the housing and occupations of the patients, has always retained an essentially utilitarian outlook; while, on the other hand, the universities have continued to preserve a more purely scientific point of view. Each side can claim advantages; broadly speaking, the great scientists, physiologists, and anatomists, are found attached to the University schools, and famous physicians and surgeons to the hospital schools.

Meanwhile, not only the teachers but the profession as a whole have been losing touch with the social life of the community. Teaching, in the first place, has been in the hands of the scientist and the specialising consultant, who have no intimate acquaintance with general practice. On the other hand, the general practitioner himself, called in to cure, has had perforce to confine his attention to the illness before him, for altered social conditions have conspired to narrow his outlook. The practitioner of the eighteenth century found his patients employed on the land or in some home industry, and he was familiar with their daily lives. To-day occupation is carried on in the mine, the factory, the mill, and the business house, not merely by men, but, to an increasing extent, by women also; and the doctor has lost touch with working conditions—those conditions which frequently supply the reasons for the illness he is treating. Thus he is unable to study the predisposing influences, to balance up cause and effect, and to act as a guide towards health and the prevention of disease.

The bearing of the above remarks upon the Welsh medical school, started on university lines, but about to reorganise and include also the hospital curriculum, is clear; the advantages of both systems have to be combined in one and their disadvantages made good.

THE RISE OF PREVENTIVE MEDICINE.

The science of medicine is associated in the minds of most people with the cure of disease. Disease is the point around which thoughts centre; and through the ages, from the time of Hippocrates onwards, attention has been mainly directed to remedies and treatment. The point of view has been that "they that be whole need not a physician, but they that are sick." Nevertheless, there is another great and rapidly growing side of medicine, of which traces exist reaching back into antiquity; I mean the prevention of disease. This side presents a point of view which centres thought on the positive entity, Health, rather than on the varied manifestations of lack of health which we sum up in the negative term, disease. Traces are to be found even in the Mosaic law aimed at preventing the spread of leprosy; isolation of the afflicted person was insisted upon: "he is unclean; he shall dwell alone; without the camp shall his habitation be"; and also disinfection by fire: "He [the priest] shall therefore burn that garment, whether warp or woof, in woollen or in linen, or anything of skin, wherein the plague is; for it is a fretting leprosy; it shall be burnt in the fire." There is also a passage in Jeremiah which recognises the two sides of medicine and might well be engraved over the portals of the Welsh School of Medicine: "Behold, I will bring it [the nation] health and cure."

It would be interesting to trace the history of preventive medicine through the centuries. The Greeks, for instance, not only had their god of healing, Æsculapius, but also their beautiful goddess of health, Hygeia, whose name is perpetuated in the word "hygiene"; and they had town water-supplies, since, according to Plutarch, Themistocles was able to erect a statue at Athens out of fines collected from those who diverted the public water-supply into their own grounds. The Romans had sanitary regulations: food inspection was under Ædiles Cereales; water-supply and sewers were under the Comites Cloacarum; and there were enactments against burial in the city. Rough-and-ready isolation against disease was practised in mediæval times. But the real seeds of preventive medicine were sown in the eighteenth century by such Englishmen as Sydenham, with his thoughts on epidemic disease; Mead, who advocated port quarantine against plague; and Jenner, who introduced vaccination against small-pox. In the nineteenth century came Farr and Simon, the architects of modern sanitary science; to be followed by the great Pasteur, whose epoch-making discoveries led to recognition of the cause of, and means for preventing, certain infectious diseases. Valuable as his discoveries proved to surgery in the hands of Lister, their value in preventing disease has even been greater. Take, for instance, the conversion of the pestilential Isthmus of Panama by Gorgas into a white man's country, which made possible the construction of the great canal; the world is thus in debt for its two great canals to the genius of France: the genius of Lesseps and the genius of Pasteur.

My time is limited, and I can only pause to remark that through the ages there has been a growing recognition of the necessity for a science of preventive medicine, and that this science has swung forward with giant strides synchronous with the advance in civilisation brought about by the industrial revolution of the nineteenth century. Previously, certain diseases, such as leprosy, had disappeared, no one knew quite why. Long before we knew the disease-carrying power of mosquitoes, drainage banished malaria from these isles, where it used to rage (as it does to-day in the tropics) in the morasses round Edinburgh, now the fertile Midlothian country, and in the fens of Lincolnshire. Cleanliness conquered typhus before we recognised the part played in its spread by the louse.

Thereafter the attack on disease has been clearly directed: typhoid has surrendered to pure water-supply and serum; vaccination has defeated small-pox; muzzling has stopped hydrophobia; cholera and plague are kept at arm's length by port quarantine; the tropical diseases—malaria and yellow fever—are eradicated by attacking the stegomyia and anopheles mosquitoes in their breeding-grounds; sleeping sickness, of which wild animals are carriers, is known to be transmitted by the tsetse fly, and the line of attack is thus apparent; typhus in the Serbian Army was overcome by elimination of the louse; infantile diarrhœa is coming under control through destruction of the domestic fly; scurvy and beri-beri have surrendered to suitable vitamines in food; rickets seems likely to follow; scarlet fever under rigid isolation is losing its terrors; we protect to-day against diphtheria, against common colds, and even influenza; hospital gangrene and sepsis have collapsed before Listerism and asepsis; puerperal fever only lingers as a reproach to the accoucheur in whose practice it appears.

These instances of the abolition of certain types of disease would, however, only be matters of passing interest if the general health remained at its old level; if the removal of one disease merely left an unresisting population to fall victim to others; if the tendency of the sick to be sick remained unaltered; if the vigour of the nation were not increased; for, as Martial expressed it, "*non est vivere, sed valere vita*" (the joy of life is not in living, but in health). But evidence exists that vigour is greater; the death-rate from tuberculosis has, since 1860, fallen 50 per cent. among males and 67 per cent. among females, as the general well-being, expressed in better food-supply, has been rising; infant mortality has fallen from 154 per 1000 children born in 1851–60 to 105 in 1911–18, and the death-rate of England and Wales, which was 20·6 per 1000 living in 1868, had fallen to 13·5 in 1917.

The debt the nation owes to preventive medicine is written in the lives of us all in letters of gold, for a nation's wealth is that nation's health. If I had been speaking some century ago instead of in 1919 my audience would have been smaller. Some of us would have succumbed in infancy; others of cholera; others of typhoid, of typhus and gaol fever, which attacked the judges and witnesses in court as well as the prisoners; others of malaria; more still of consumption; others of small-pox, while any woman present would be an outstanding beauty if not pock-marked to indicate that she had passed through her attack of that national scourge. From a financial aspect we should have had to pay higher for life insurance, but lower for pensions because few could be expected to benefit thereby. Preventive medicine has indeed a proud record, but many a field lies ahead for us to cultivate.

The Official Status of Preventive Medicine.

In contradistinction to curative medicine the preventive side has not been particularly associated with either the university or the hospital schools. It has developed independently, and its distinguishing characteristic has been its official status. This it has acquired through the will of the people expressed in Acts of Parliament, the list of which is long—the Vaccination Act, Notification of Deaths, Public Health and Factory Acts, Burial Act, Housing, Midwives, Employment of Children, Protection of Food, Notification of Births, Education Acts, Old Age Pensions, Health Insurance, Notification of Tuberculosis, and still the list is incomplete. Taken collectively, these Acts represent the most remarkable instance—one to which social economists have not drawn attention—of nationalisation, the nationalisation of health. This body of legislation is an expression of an ill-defined feeling that all is not well; and of the nation struggling, and with a fair measure of success, though until recently on no coördinated plan, to take charge of, protect, and improve its most precious possession, health.

Preventive medicine has lacked one essential to complete success which curative medicine has possessed, although, as already pointed out, it is not stressed in modern medical training. Curative medicine, which, by the way, has never been official, has always been personal to the sufferer; and intimate relations have always existed between the patient and his doctor. Now a doctor, by his very name, should be a teacher; but the doctor, when sent for, is sent for not to teach but to cure; and the public, accustomed to come into personal touch with the profession in cases of illness only, has failed to recognise the personal application of the proverb that prevention is greater than cure.

Possibly I may seem to be drawing too clear a distinction between preventive and curative medicine; if so, it is only for convenience in presenting the case, for I agree that "the aim of treatment in every case, whether preventive or curative, is to remove or counteract the agencies which threaten to produce or have produced the abnormal. In most cases preventive and curative treatment do not differ in kind."[1]

The impersonal character of much preventive medicine of the past is clearly seen in the recommendations of the Royal Sanitary Committee, whose report[2] led up to the Public Health Act, 1875:—

1. The supply of wholesome and sufficient water for drinking and washing.
2. The prevention of the pollution of water.
3. The provision of sewerage and utilisation of sewage.
4. The regulation of streets, highways, and new buildings.
5. The healthiness of dwellings.
6. The removal of nuisances and refuse, and consumption of smoke.
7. The inspection of food.
8. The suppression of causes of diseases, and regulations in case of epidemics.
9. The provision for the burial of the dead without injury to the living.
10. The regulation of markets, &c., public lighting of towns.
11. The registration of death and sickness.

No one can gainsay the value of action on these lines, and I have referred to some of the benefits that have accrued; but each member of the community is only interested in these matters in a half-hearted way. The man in the street does not understand mortality-rates or life-tables; infant mortality does not excite him; he takes his water-supply and public sanitation for granted; he avoids a sewage farm, and pours smoke into the atmosphere if he can get coal for the purpose. He only becomes vocal amid a plague, like influenza, which he is sure is someone's fault, not his own. There have been no health practitioners visiting and talking things over as the family doctor talks over the family treatment of measles, bronchitis, indigestion, headache, sciatica, and the like. More personal interest is needed; and recent advances in preventive medicine are already supplying the need. Maternity and infant clinics are dealing with the individual mothers and babes; and their success is remarkable. School medical inspection and school clinics are similarly personal, and are accepted without demur. Home-visiting arising out of the above, and in connexion with tuberculosis work, is carrying the apostles of health into the home. Welfare supervision and safety-first work in factories are appealing directly to each worker. Thus preventive medicine is steadily becoming more personal and more popular.

Personality in Industry and Health.

I would venture on a comparison by saying that the nineteenth century discovered the general principles of sanitary science, just as in industry it discovered the principles underlying the use of power-driven machinery. Machinery has revolutionised civilisation. Sanitation is revolutionising national health. The twentieth century in the industrial world is now discovering the individuality of workers; the value to output of selecting the right man for each task; the value of shortened hours of labour and organised rest-pauses, of health supervision and industrial canteens. The discovery in the world of preventive medicine is similarly the importance of the individuals who collectively form the nation. In industry the maximum output depends upon the worker as a human being; no matter what inventive genius is applied to improving mechanical appliances, it is the man at the machine who determines the output, and who can increase or decrease that output in proportion as he is physically and mentally healthy and fit. In the field of preventive medicine the provision of pure water, perfect drainage, and clean air cannot compel an unwilling public to drink at the clear spring of health; everything must finally depend on the individual if the health of each is to be ensured, if the nation as a whole is to become A 1. Sir George Newman, after pointing out[3] that as the nineteenth century was drawing to a close preventive medicine became more personal, social, and apposite than formerly, based more on the child, was concerned more with the individual than with the environment, goes on to say: "In the last decade of the nineteenth century came the London Public Health Act, legislation on housing and on industrial betterment, on the cleansing of persons as distinct from properties, and on the education of blind, deaf, and defective children, the provision of school meals, the protection of food, the notification of births, the medical inspection and treatment of children, the Children Act itself, old age pensions, the health insurance of the adolescent and adult, and a group of Acts concerned directly with some of the prevalent diseases, tuberculosis, mental deficiency, ophthalmia neonatorum, and the venereal diseases. No individual planned this significant sequence, no single factor explains its emergence. It represents a new social spirit, a new application of science to the life and labour of man."

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[1] Interim Report of Education Committee on Preventive Medicine, General Medical Council.

[2] Report of the Royal Sanitary Commission, 1871, vol. i., p. 20.

The Coming of the "Health" Nurse.

Now turn to another comparison between curative and preventive medicine. Curative medicine was confined to medical practitioners until the middle of last century, when, arising out of the inadequacy of hospital work disclosed in the Crimean War, Florence Nightingale called into existence the hospital nurse. How the profession worked previously at the mercy of Sarah Gamp and her invisible colleague, Mrs. 'Arris, is difficult to-day to imagine. But a true mate has been found, and the trained nurse is an integral part of the medical profession. She in her turn has called into existence the invaluable hospital almoner. Meanwhile the trained midwife is rapidly replacing her prototype and becoming indispensable throughout the land; she bids fair soon to relieve the practitioner to a great extent of her side of his work; her sphere of activity, which is prevention rather than cure, provides an excellent instance of the inseparability of the two sides of medicine.

Preventive medicine is treading close on the heels of his elder brother, and in seeking for a mate has called into existence a new type of nurse, the health visitor; and she is becoming as necessary in her field of work as is the trained hospital nurse in hers. Her predecessor, if she had one, was the village nurse and district visitor. To-day she is wanted in the maternity and infant clinic; she is necessary to the school clinic and tuberculosis dispensary; home visitation is in her hands; and she is needed in the factory. Her work is ever expanding in the city and on the countryside. Her importance to the future of preventive medicine, to its immediate and personal application, is immense.

THE TASK TO BE ACCOMPLISHED.

What is then the task which lies before the Welsh National Medical School? What are its responsibilities? It has to train a whole and complete medical service for the Principality so that there may be established throughout Wales a capable and well-equipped band of apostles preaching the gospel of health on hill and dale, in hamlet, village, and town. The band must be complete, medical men and women, general practitioners and consulting specialists, medical officers of health, school officers, factory officers, maternity and infant welfare officers, tuberculosis officers, and trained nurses, hospital almoners, midwives, health visitors, and welfare supervisors. Each and all recognising the place they have to fill in the life of the nation, the dependence of that life upon their work, and the high duty they undertake when entering our profession; but strengthened for their work by being bound together by the bond of a common *alma mater*; imbued with the high aspirations she will have inspired, returning to her from time to time, bringing with them the wealth of accumulated experience, and acquiring in return up-to-date information as to improvements and advances in knowledge.

The Means to Attain the End.

There are available means, general and local, for the purpose in hand.

1. The general experience of the past, and of other places enables that which has proved best and most successful to be selected, and that which has proved less successful, or even disadvantageous, to be avoided. Veneration for antiquity must not be allowed to hamper, nor adhesion to the new because it is new. "Affectations of antiquity and novelty are the humours of partisans rather than judgments."[4] As Clough has expressed it—

> "Old things need not be therefore true,
> O brother men, nor yet the new;
> Ah! still awhile the old thought retain,
> And yet—consider it again."

2. The local facilities include: (*a*) A university college able and ready to provide instruction in all knowledge ancillary to medicine, whether in social economics or psychology, or in the physical sciences of chemistry, physics, botany, or biology; (*b*) a medical school already flourishing, in which the training is on scientific or university lines, a school whose numbers have outgrown its buildings, and for which new accommodation is being provided; (*c*) a hospital, the King Edward VII. Hospital, second to none in modern equipment, and ready at hand for providing clinical instruction in every branch of curative medicine, surgery, and midwifery; (*d*) a unique organisation in the King Edward VII. Memorial for Wales to provide instruction in every branch of tuberculosis work; (*e*) excellent mental and fever hospitals adjacent (and the authorities of the former are even now taking steps to develop, through a mental clinic, the preventive side of nervous diseases which has been neglected far too long); (*f*) Cardiff and Glamorgan possess maternity and infant welfare and school clinics, ready for providing instruction as regards the health of mothers, babes,

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[3] An Outline of the Practice of Preventive Medicine, Sir George Newman, 1919, p. 15 (Cmd. 363).

[4] Novum Organum, Bk. I, lvi.

and growing children, who represent the spring-time of life when the seeds of future disease are planted; (*g*) the district is sufficiently industrial to enable industrial medicine to be studied, the mental and physical value of occupation and exercise, the aggravation of ill-health associated with drudgery and fatigue; (*h*) it is sufficiently populous to afford facilities for study of social economics, a volume of knowledge too long unopened by our profession; (*i*) Cardiff is a great port where quarantine can be seen in action, and acquaintance made with tropical diseases; (*j*) there are also important possibilities in the adjacent flourishing towns of Swansea and Newport; (*k*) of immense importance, also, is the Ministry of Health for Wales, in the hands of men with wide vision, able and ready to give invaluable advice and enthusiastic support; (*l*) there is the Prince of Wales's Hospital for after-care of surgical cases; started for maimed soldiers and sailors, it is about to be opened for the treatment of civilians injured in the stress of life; (*m*) last, but by no means least, owing to the generosity of Sir W. J. Thomas, there is the Preventive Medicine Institute now being built, the work of which must permeate the whole or the *raison d'être* of its existence will not be fulfilled. Here is a new thing established in connexion with a medical school, established at a most interesting moment in its existence.

This institute stands to represent not only teaching but also research and the spirit of research. For, as Sir Walter Morley Fletcher has recently written,[5] "The importance of linking research work with university teaching for the gain of each is so universally admitted as to need no discussion." The institute must be acquainted with the health conditions of Wales and be prepared to direct research to meet the needs of the Welsh nation; it must have knowledge of social conditions with which health is so intimately associated; it must be alive to industrial conditions and be prepared to investigate why the industrial worker so often fails to maintain a high standard of health and so is unable to give of his best to the community which he and we all serve; it must note variations in sickness and mortality in different districts and be prepared to assist in searching out the causes and finding the way to remove them, "for where the cause is not known the effect cannot be produced."[6] Its scope must, in short, so far as medicine is concerned, be as broad as that proudly claimed by Bacon, who took all knowledge for his own.

The Next Step.

All these varied organisations and institutions have to be called in to build the structure of our National School of Medicine. The work of coördinating the whole will be no mean task. The conditions are, however, favourable; not merely because the development of the school is looked on with favour, and recognised as a need in the Principality, but because the development of such a coördinating central nervous system for pre-existing units represents the normal process in nature. Nature does not start with a central nervous system and attempt through it to force into existence peripheral units; such a husteron-proteron proceeding is only favoured by "constructive politicians," "Nature to be commanded must be obeyed."

A scheme of instruction must be evolved which will consider afresh the needs of the community the school has to serve. Nor are the needs of Wales only for consideration. Wales is a part of a great world-wide empire, and her sons and daughters go forth to the uttermost parts of the earth; they must be equipped for their work. The duty of the school is imperial as well as national.

The position of the student and the time at his disposal present other important aspects. For adequate teaching of all that each specialist would desire many long years would be required; the students would still remain with their education incomplete at 40, and would finally only issue forth as grey-haired and reverent seniors, to do but a few short years of work before becoming old-age pensioners. Here let me quote again from Sir George Newman.[7] "The object of medical education is not the completely furnished encyclopædic; but the equipped man, alert, ready, trained, with an expanding and enlarging mind, the dexterous and willing instrument of knowledge, technical craft and progress, whatsoever its destination." He goes on to discuss a reduced and simplified curriculum, and states under six headings how to make the study deeper and the training more effective; the fifth heading is of special interest: "Associated with treatment, is the large issue of preventive medicine, in which something approaching revolutionary reform is needed. The ordinary medical student does not require a course of study comparable to that prescribed for the Diploma in Public Health. He is not a 'diminutive' medical officer of health. The knowledge of preventive medicine he requires is something deeper and more intimate than an administrative function or dealing with an environment, more innate than a collection of memorised data; it is such an understanding of the nature of disease that its occurrence can be prevented or it can be checked in the patient before disablement; in short, a curative medicine which is preventive. Its application is not restricted by law or confined by expediency; it is universal. It concerns almost all disease, and not infectious disease only. To express it crudely, death under 50 or 60 years of age has got to be prevented or avoided, and the medical practitioner is the primary agent in the task."

Sir George Newman in here setting a standard is considering only the medical student; but we have to aim higher still, since the Welsh medical school is part of a university. We must send forth men with the mark upon them of a university, a place which Cardinal Newman once defined as a "school of universal training." The general world of culture must be to them an open house, into which they have found their way through university life with minds broadened by exchange of thought and intercourse with teachers and fellow-students in other schools than their own.

Here is the standard we have to aim at and attain; then those who go forth to their work, taught to be—

> "...... inquisitive how pricks and cracks
> Befall the flesh through too much stress and strain,"

will be able to look back on their student days and say (giving a turn to Browning's words):—

> I own the Past profuse
> Of power each side, perfection every turn:
> Eyes, ears took in their dole,
> Brain treasured up the whole;
> Should not the heart beat once "How good
> to live and learn?"
> Not once beat "Praise be Thine!
> I see the whole design."

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[5] Fifth Annual Report of the Medical Research Committee, 1919, p. 12. (Cmd. 412.)

[6] Novum Organum, Bk. 1, iii.

[7] Some Notes on Medical Education in England, Sir George Newman, 1918, pp. 116–7 (Cd, 9124).

HOW THE PURPOSE IS TO BE EFFECTED.

The exact way in which the purpose will be effected lies to-day on the knees of the gods. No one can draw back the veil from the future. But the gods help those who help themselves. If after determining upon the end to be attained we adopt the motto *Finem respice*, and if the means to attain that end are present, as they are, nothing can stay the will to succeed. That will is present; it has moved mountains to construct the position as it exists to-day, compared with which the difficulties ahead will be but as molehills. Those who are to be privileged to carry on the work owe deep gratitude to the men who have toiled before, bearing the heat and burden of the day; some have succumbed in the struggle, like Colonel Bruce Vaughan.

Personally, while recognising the magnitude of the task ahead, I bow to these pioneers who have enabled me to say, "The lines are fallen unto me in pleasant places; yea, I have a goodly heritage."

ON THE
SERUM-DIAGNOSIS OF SYPHILIS,
WITH SPECIAL REFERENCE TO THE STANDARDISATION OF RED BLOOD CELLS AND COMPLEMENT.

BY FREDERICK C. LEWIS,
ASSISTANT LECTURER IN BACTERIOLOGICAL METHODS, UNIVERSITY OF LIVERPOOL.
(From the Bacteriological Laboratories of the City and University.)

It is now well recognised in the laboratory diagnosis and control of syphilis and other pathological conditions in which the phenomenon of complement-deviation is applicable that accurate standardisation of the materials used is essential. Varying or contradictory results are generally ascribed not to any prime fault in the method, but rather to errors in technique due either to inaccuracy or omission of standardisation.

Several good methods are now made available through various publications in which the problem of standardisation has received very thorough attention. The writer, however, ventures to suggest, as one result of his work with Professor J. M. Beattie, that more attention should be paid to the standardisation of the red blood cell suspension. In the test as ordinarily carried out the terms negative, slightly positive, positive and strongly positive, or terms of similar import, are used not to indicate the presence or otherwise of active disease in the patient under examination, but rather the capacity of the patient's serum to absorb minimum hæmolytic doses (M.H.D.) of complement in the presence of the artificial antigen. It therefore follows, in order that results of one laboratory should be comparable with those of another, that the term minimum hæmolytic dose of complement should be rigidly defined, and its actual value in hæmolytic work uniformly established.

Inaccuracies Arising from Lack of Standardisation.

If the M.H.D. used by a worker at one time is less powerful than that used by him on another occasion owing to its being titrated against a less dense blood cell suspension his results, on this ground alone, will vary. Other things being equal, a powerful M.H.D. will swing his results to the negative side, and a less powerful M.H.D. will swing his results to the positive side. If this be true of an individual worker the variations will probably be accentuated if the same serum be examined in different laboratories. In an extreme case, for the sake of illustration, if a given syphilitic serum absorbed in the presence of antigen say 5 M.H.D., when M.H.D. = x, the same serum would absorb only $2\frac{1}{2}$ M.H.D if M.H.D. = 2x. Now if 5 M.H.D. were used in the second experiment the result would be complete lysis (i.e., negative) owing to $2\frac{1}{2}$ M.H.D. being free, whereas in the first case the result would show no lysis (i.e., positive) owing to there being no free complement, in each case the value of the M.H.D., although different, being determined by titration against the particular red cell suspension used. Again, if the value of the M.H.D. be small there is a danger of the native anticomplementary power of the serum becoming so obvious that the whole result is vitiated; that is to say, if a given serum owing to its anticomplementary power absorbs $1\frac{1}{2}$ M.H.D. when M.H.D. = 2x, it will absorb 3 M.H.D. if M.H.D. = x. Thus, if 3 of the weaker M.H.D. be used in the test there will be no lysis, not because the serum is positive, but because the serum itself has absorbed all the complement; whereas if the stronger M.H.D. be used $1\frac{1}{2}$ M.H.D. would remain for interaction with antigen and syphilitic ambocepter or lysis, as the case may be. These considerations may in themselves explain the occasional occurrences of several sera, usually in one series of tests, showing high anticomplementary values in the absence of antigen.

Now, the M.H.D. of complement is generally accepted as that minimum amount of complement which will hæmolyse a given quantity of sensitised red cells, primarily that is, it is defined in terms of red cells. In the writer's opinion it should be more rigidly defined—namely, that minimum dose of complement in unit volume which causes complete hæmolysis of a unit volume of *a standard suspension of sensitised red cells* under definite condition of time and temperature. If there be any variation in the strength of the red blood cell suspension the quantity of complement per M.H.D. must also necessarily vary and thus more or less influence the results of the final test. In other words, the strength of the red blood cells suspension must, within the limit of experimental error, be invariable.

Technique Now in Use.

In the various methods published by the Medical Research Committee[1] reference is made to the red blood suspension as follows. Harrison says: "The strength of the suspension which is used in the test is 3 per cent. to 5 per cent., *according to the practice of the individual worker.* ...... I, personally, prefer a 3 per cent. suspension." In this case the blood is "spun until the cells are deposited." Browning uses "3 per cent. of washed sediment." Fildes and Mackintosh advise "...... three washings in all, and use 1 c.cm. deposited washed corpuscles + 19 c.cm. saline" in their test (i.e., 5 per cent.). In method No. IV. in the Medical Research Committee pamphlet the blood is, after dilution, &c., spun until the "cells are all deposited" four times, and used in a 6 per cent. suspension of the deposit, which becomes 3 per cent. in the actual test by dilution with amboceptor. In all these methods, therefore, the blood is centrifuged and made up to a certain percentage in normal saline—namely,

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[1] Medical Research Committee Special Report, Series No. 14.

3 per cent. or 5 per cent., and presumably giving on titration correspondingly different values to the M.H.D. A point which this communication emphasises is that, apart from the varying percentages used and the difficulty of making such percentages accurately, considerable variation in the number of corpuscles per unit volume of deposit also occurs, according to the speed of the centrifuge and the length of time given to the process. In an actual experiment the blood, after washing, &c., was spun until the cells were just deposited and the supernatant fluid clear; the volume of the deposit was then 9·5 c.cm. Without disturbing the deposit, the tubes were again spun for 30 minutes longer; the volume was then 7 c.cm.

In the absence, therefore, of precise instructions as to the technique to be followed, differences in the strength of the blood suspensions would appear to be inevitable. If such differences exist then the value of M.H.D. must also necessarily vary.

Illustrative Experiments.

These differences are shown in the following illustrative experiment, where four different suspensions of sensitised red cells were used.

I. Blood washed and finally "whirled" until the cells were deposited, diluted to a 5 per cent. suspension.

II. Similar suspension to No. I., except the "whirling" was extended for an additional 30 minutes, and the deposit made up to 5 per cent. suspension.

III. Same as No. II., but 10 per cent. suspension used.

IV. Suspension made up as detailed below.

In each case the cells were sensitised in the usual manner and complement added. The usual precautions were taken to ensure thorough mixing and adjustment of total volume.

TABLE I.

Suspension.	Complement in volumes.											
	1	2	3	4	5	6	7	8	9	10	11	12
I.	Nil	T	SH	H	H	H	H	H	ACH	ACH	ACH	CH
II.	,,	Nil	,,	,,	,,	,,	,,	,,	H	H	,,	ACH
III.	,,	,,	Nil	T	SH	SH	,,	,,	,,	,,	H	H
IV.	,,	T	SH	H	H	H	,,	ACH	ACH	CH	CH	CH

Nil = No hæmolysis.
T = Trace of hæmolysis—that is, very slight tinting.
SH = Slight hæmolysis—that is, colour slight but deeper than "T."
H = Hæmolysis more or less marked, but not complete.
ACH = Almost complete hæmolysis—colour deeper red with small deposit of red cells.
CH = Complete hæmolysis—no deposit or very slight practically colourless deposit.

The tubes were incubated in water-bath for one hour at 37° C. and results read the following morning, when the non-hæmolysed cells had deposited.

It will be observed that with suspensions II. and III. the experiment did not indicate a minimum hæmolytic dose—that is, it was greater than 12 volumes of complement, whereas the M.H.D. of suspension I. was 12 volumes of complement, and that of suspension IV. was 10 volumes of complement. Excluding suspension No. III., which perhaps was stronger than anybody would ordinarily use in a test, we have three suspensions each with a different M.H.D. and each of which could be used ordinarily in a test. The first one was an ordinary 5 per cent. suspension, the second had merely been centrifuged for a longer period. The third was made up according to details given below.

In reference to Nos. I. and IV. in which the M.H.D. was shown the following observations may be made: Taking the first case M.H.D. = 12 and in the second M.H.D. = 10, and using these quantities in a test, with 3 M.H.D. and 5 M.H.D., as in Harrison's method, we have the following:—

A. Suspension I. 3 M.H.D. = 36 volumes
B. Suspension IV. 3 M.H.D. = 30 ,,
Showing a difference of 6 volumes.

That is, if these two suspensions were used in two tests with the same sample of serum at the same time, there would be a difference in the amount of complement equal to 3/5 M.H.D. (M.H.D. = 10). This point is further demonstrated in the case of the tubes containing 5 M.H.D.

A. Suspension I. 5 M.H.D. = 60 volumes complement
B. Suspension IV. 5 M.H.D. = 50 ,, ,,
Showing a difference of 10 volumes—that is, a difference of 1 M.H.D. (M.H.D. = 10).

It will, I think, be recognised that such variation in the actual amount of complement used, as in taking 5 M.H.D.'s, may make a difference of one whole dose in relation to two different suspensions of cells will possibly introduce serious errors in the interpretation of the results. Especially is this the case when the difference between the blood suspensions, as in Nos. I. and IV., is very slight, as evidenced by the appearance of the first nine tubes in each set (see Table I.).

A further illustrative experiment is now given. The volume of some freshly washed and deposited red cells was measured and suspensions made up respectively to 6 and 10 per cent. in normal saline. Two other tubes of blood, previously measured and found jointly to contain 9·5 c.cm. of deposit, were centrifuged for a further 30 minutes, this, as previously mentioned, effecting a concentration of the cells to 7 c.cm. These were made up to 10 per cent. A further standard suspension was also made. In each case the cells were sensitised before adding the complement by adding the necessary quantity of diluted amboceptor in saline, thus bringing down the percentage to 3 per cent. and 5 per cent. respectively and halving the concentration of the standard suspension.

TABLE II.

A. 3 per cent.	suspension,	M.H.D.,	3 vol. complement.
B. 5 ,,	,,	,,	4 ,,. ,,
C. "Standard"	,,	,,	5 ,, ,,
D. 5 per cent. concentrated	,,	,,	5–6 vol. (say 5·5) ,,

Similar differences are here to be noted, as in the previous table (I.)—namely, four suspensions of sensitised red cells, (A) and (B) in the strength commonly used, (D) a possible variant of (B) and another (C), all required different minimum quantities of the same diluted complement to bring about complete hæmolysis. If multiples of these doses had been used in testing four portions of a given serum (say X 3 and X 5) complement would have been used in quantities as follows:—

Suspension A.	9 volumes	and 15 volumes.
,, B.	12 ,,	and 20 ,,
,, C.	15 ,,	and 25 ,,
,, D.	16·5 ,,	and 27·5 ,,

Taking suspension A as a basis for comparison,

B would have	3 and 5	vols. of complement.
C ,,	6 and 10	,, ,,
D ,,	7·5 and 12·5	,, ,,

more than that apportioned to A.

Now in terms of the M.H.D. as found with suspension A.

Serum with B receives	1 and 1·6	M.H.D. in excess of A.
,, C ,,	2 and 3·3	
,, D ,,	2·5 and 4·1	

Thus if the serum used was only just sufficiently positive to inhibit hæmolysis with suspension A and one multiple of the M.H.D. of A, partial or complete hæmolysis would occur in all the tubes used with suspensions B, C, and D. A positive result would be indicated if suspension A were used, and slightly positive or negative results would be indicated with suspensions B, C, and D. That these absolutely contrary results do not occur frequently in well-established practice is, I think, due to the fact that strongly positive sera can stand against a considerable excess of complement and frankly negative cases absorb so little complement in the main that they do not adversely affect the result even when, owing to a weak blood suspension being used, relatively small doses of complement are included in the complex. These and similar results would appear to indicate that further standardisation of the red blood cell suspension is essential.

Method of Standardisation.

The method suggested for the standardisation is as follows:—The blood is collected, defibrinated, washed, and deposited in the usual manner. The deposited red cells are then mixed with three or four times their volume of normal saline. A 25 or 50 g. specific gravity flask is weighed accurately (*a*) dry and (*b*) filled with normal saline. This saline is then thrown out and replaced with the heavy suspension of red cells and reweighed. In these weighings the usual precautions are taken, such as the accurate filling of the flask, and the weights are taken at 60° F. This latter is accomplished by immersing the specific gravity bottle, saline, and suspension in a water bath at 60° F. The relative weight of the red blood cell suspension against normal saline at a constant temperature is thus calculated, and this can be utilised as a basis for the further dilution of the suspension.

This method is not a true specific gravity method, for as such it would be necessary to use distilled water as a basis for comparative weight and also for dilution, this latter being, of course, obviously inadmissible. I have found that a relative volume-weight of 1·0040 is a suitable dilution for use, and that the M.H.D. of complement based on such a suspension of red blood cells gives a good range of results in weak positive, positive, and strongly positive cases.

The following is an illustrative calculation in the preparation of the standardised suspension; a 50 g. specific gravity flask was used.

A. Weight of flask = 22·265 g.
B. Weight of flask and saline = 72·404 ,,
C. Weight of saline (by difference) = 50·139 ,,
D. Weight of flask and blood suspension = 73·229 ,,
E. Weight of blood suspension (by difference) = 50·964 ,,
F. Relative weight of blood suspension $= \frac{E}{C} = 1{\cdot}0164$,,
G. Relative weight of required suspension = 1·0040 ,,
H. Dilution necessary to reduce F to G $= \frac{0{\cdot}0164}{0{\cdot}0040} = 4{\cdot}1$

Hence, to obtain the necessary dilution one volume of the strong red cell suspension is added to 3·1 volumes of normal saline—i.e., 31 c.cm. of normal saline is added to each 10 c.cm. of the strong suspension.

Remarks.

An attempt was made to standardise the red cell suspension by the estimation of liberated hæmoglobin by means of a clinical hæmoglobinometer, but this method was ultimately abandoned principally owing to the error inevitably introduced in the final colour-matching. With the adoption of the "relative weight method" a standard suspension is obtainable, in which the errors due to making up the percentages and the possibly large errors introduced by variations in centrifugalisation are eliminated.

It may perhaps be justly claimed that this method of standardisation of the red blood cell suspension will give a practically unvarying concentration of red cells for every series of tests, and will establish a standard value for the term "minimum hæmolytic dose" of complement. It is not claimed that this method of standardisation is any considerable advance in technique because many thousands of excellent results have been obtained without it. The previous lack of such a standardisation may, however, partly explain the known differences which exist between the results obtained on the same serum by different workers.

The method will minimise a source of error, especially in repeated tests and in comparative work generally, and may assist in those "border-zone" cases of mild or doubtful infection and in cases which have been well treated. It is in these difficult cases that very accurate standardisation is essential, but probably less so in frankly positive and negative sera.

Other methods may suggest themselves to other workers, but in the meantime, in the writer's opinion, a fixed standard red cell suspension used in unit volume and, as a corollary, the establishment of a uniform value to the term "minimum hæmolytic dose" of complement is, if not essential, at least desirable. The adoption of this or a similar method involves extra labour. It does not simplify the technique, it rather adds to the demands on the worker. If, however, there is a gain in accuracy the extra time involved will be well spent.

In conclusion, my best thanks are especially due to Professor Beattie and also to various colleagues with whom I have discussed the subject matter of this contribution.

A GERMAN BULLET EMBOLUS.

BY H. J. B. FRY, M.D. OXON.,
CAPTAIN, R.A.M.C. (T.F.); PATHOLOGIST, NO. —— GENERAL HOSPITAL, B.E.F., FRANCE.

THIS case is recorded as a remarkable instance of the migration of a rifle bullet in the venous blood stream. Previous cases have been noted of the movement of foreign bodies in the vascular system by Grangérard,[1] Lyle,[2] Gregory,[3] O'Neill,[4] and Menuet.[5] Bland-Sutton[6] quotes a number of cases, of which the one here described forms one. In this instance there was a small oval wound of entry a half-inch below the left anterior superior iliac spine. It will be seen below that the bullet entered the vascular system by gouging the posterior aspect of the left external iliac artery and penetrating into the lumen of the left internal iliac vein, causing an arterio-venous aneurysm of these vessels. From this position the bullet was carried up the common iliac vein and the inferior vena cava. It passed through the chambers of the right side of the heart, through the pulmonary valve into the left branch of the pulmonary artery (vide Plate I., A), where it impacted as an embolus in one of the branches supplying the lower lobe of the left lung, thereby causing two infarcts in this lobe (vide Plate I., B, C). Keith,[7] in discussing intra-cardiac bullets, had drawn attention to the necessity of determining the site of entry of such bullets into the circulation and the reason for their entry without much hæmorrhage, and stated that there was no record of a bullet being carried into the pulmonary artery. Such a tortuous and deflected course as the above is in itself remarkable, but, in addition, there was no injury to be found in either of the veins along which it travelled or of the flaps of the tricuspid and pulmonary valves through which it passed. It is astonishing, on consideration, that the bullet should not have been entangled in the meshes of the chordæ tendineæ and musculi papillares of the right ventricle. Moreover, there was never any pain or discomfort referred to the heart or the lungs. The question naturally arises whether this bullet could have found its billet by any other path. The clinical evidence and post-mortem findings prove without question that the bullet could only have reached its final situation by the above route, as there was no other wound of the body and no other place of entry into the vascular system except the above-mentioned aneurysm.

The history and course of the case present some interesting features in addition to the post-mortem findings. The notes of these are therefore added.

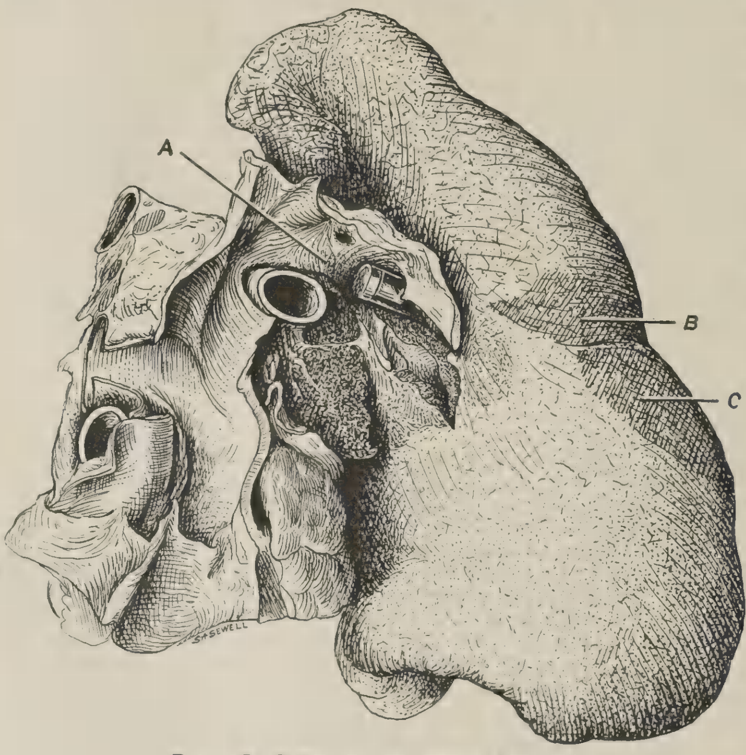

PLATE I.—Pulmonary artery and left lung.

Clinical Abstract.

The patient stated that he was standing by his battery position on April 2nd, 1918, when he suddenly felt a sharp stinging pain in the left foot, and thought that he had been hit there by some missile. His boot was taken off, but no wound could be found. He was unable to walk and was carried to the field ambulance, where his leg was examined and found to be swollen and congested. A small wound below the left anterior superior iliac spine was found, but nowhere any wound of the leg.

On admission to this hospital a small, oval, suppurating wound, apparently superficial, was present immediately below the left anterior superior iliac spine. There was no evidence of penetration and no track could be found. The left foot was puffy and discoloured, and there was no capillary reaction. No pulse could be felt at any point in the leg. A widespread ecchymosis beneath the skin of the left loin and left iliac fossa and a well-marked humming murmur heard at its loudest about $2\frac{1}{2}$ inches below and to the left of the umbilicus, together with a thrill, afforded a diagnosis of an aneurysm of the left external iliac artery. The whole of the left leg was considerably swollen and œdematous. The patient continually complained of much pain in this leg. The temperature was normal on admission, but the pulse was rapid, 100–120, full, but of low force and tension. The pulse-rate was rapid throughout the course of the illness. X ray report was: "No evidence of F.B. from level of umbilicus to knees."

For a week the patient's general condition remained good. There was some collapse of the bases of both lungs. A hæmic systolic murmur was present at the apex of the heart, and it was especially loud in the pulmonary area. The pulse was rapid (136 per min.), full, and soft. Blood pressure 95–100 mm. Hg. Respiration was rapid (36 per min.) and shallow. There was a slight icteric tinge of the skin of the face and conjunctivæ, and considerable œdema of the back. Urine showed a faint trace of albumin, a few urinary epithelial cells, and one or two degenerated granular casts. Ten days after its receipt the wound was almost healed and the ecchymosis of the loin had disappeared, but gangrene of the left leg was complete and the leg was therefore amputated below the knee by Captain Le Mesurier, R.A.M.C. (T.C.).

The patient's condition improved for a short time, but in a few days the amputation stump became gangrenous. A booming cavernous note was detected in the aneurysmal murmur as though the aneurysm had enlarged, and the respiration, which had always been shallow and rapid, became gasping and very rapid, with a greatly increased pulse-rate. Finally the patient became delirious, the pulse was uncountable, and the respiration-rate rose to 60–70 per min. The temperature steadily rose and the patient gradually sank and died in coma, one month after the receipt of the wound.

Post-mortem Notes.

The peritoneal cavity was free from fluid, except for a small quantity of blood-stained exudate. In the extra-peritoneal tissue planes in the region of the left iliac fossa and left psoas muscle was a widespread ecchymosis extending into the pelvis and across to the right iliac fossa. There was a large fluctuating swelling commencing at the lower part of the left common iliac artery and vein. Its periphery was ill-defined. The abdominal aorta appeared contracted and rather shrunken, and the left common iliac artery was small. Both vessels contained a little recent clot. The inferior vena cava was large and dilated and full of dark fluid blood. The renal veins were large, and both common iliac veins were distended, especially the left. The left femoral artery was small, collapsed, and empty, but the femoral vein and internal saphenous vein were large and thrombosed. The aneurysm was ligatured above at the common iliac artery and vein, and below at the femoral artery and vein. On dissection it was found that the left external iliac artery communicated along its posterior aspect, immediately below the origin of the left internal iliac artery (Plate II., A), by a bevelled opening, with the anterior wall of a large saccular aneurysm about 4 inches long by $3\frac{1}{2}$ inches wide formed by the internal iliac vein. The external iliac vein lay in the anterior wall of the aneurysm, with a crescentic opening into the apex of the sac (Plate II., B). It was completely thrombosed below this opening. The external iliac artery was patent both above and below its opening into the sac (vide Plate II.).

The liver was enlarged, hard in parts, and showed a typical "nutmeg" appearance. The spleen was slightly enlarged, dark coloured, tough, and elastic. The kidneys showed congestion at the bases of the pyramids, but were free from marked changes. The pleural cavities contained a small quantity of blood-stained exudate, and the pericardial cavity contained a slight excess of clear fluid. The right lung showed some collapse at the base of the lower lobe and posterior border. There was a slight compensatory emphysema of the upper lobes. The left lung showed an infarct 4 inches from base of the lower lobe immediately below the inter-lobar fissure extending to the anterior border of the lung. The infarct was dark red, very hard and well defined, size 4½ inches by 1½ inches broad. The adjoining lung tissue was healthy. There was a smaller infarct 1¼ inches above the larger infarct near the anterior border of the lower lobe, which showed a moderate degree of collapse of the base and posterior border. There were a few small areas of collapse in the upper lobe. The heart was opened in situ while attached to the lungs in order to determine the cause of the infarcts. The veins of the chest and neck were engorged with blood, and the right ventricle when opened was slightly dilated, and contained a quantity of dark fluid blood. The tricuspid valve was normal in appearance. The pulmonary valve was intact and healthy, and the cusps normal. The right branch of the pulmonary artery was healthy and contained fluid blood. The left branch of the pulmonary artery presented no abnormalities, but on opening the branch running to the lower lobe of the left lung the scissor points grated on a metallic body. This was found to be the base of a rifle bullet which was very firmly wedged in the lumen of the vessel surrounded by a small quantity of fibrinous clot. The bullet was in perfect shape with its axis directed in the course of the vessel, and its apex wedged firmly into it, completely occluding its lumen, and by its lateral aspect blocking the opening of a smaller branch, thus causing the second infarct.

Weights of abdominal organs: Liver, 65 oz.; spleen, 10 oz.; right kidney, 4¼ oz.; left kidney, 6 oz. Weight of bullet, 10 g.; length, 2·8 cm.; circumference, 2·2 cm.; diameter of base, 0·7 cm.

Discussion.

From measurement in situ and standard measurements, the distance travelled by the bullet in the blood stream was not less than 2 feet (60 cm.). Since the blood pressure in the inferior vena cava in the normal condition stands at about + 3 mm. Hg and diminishes in the veins of the chest and right auricle to − 8 mm. Hg, while the velocity of the blood is not more than 25 cm. per second, it is probable that the blood pressure in the abdominal veins must have been greatly increased through the formation of the arterio-venous aneurysm, to have enabled the venous flow to sweep such a comparatively heavy weight as 10 g. along the veins. Raising of the venous blood pressure, no doubt, accounts for the continuously rapid pulse-rate, which never fell below 120 per minute, and for the rapid rate of respiration, 30–40 per minute, rising in the later stages to 60 per minute. The condition, in fact, was one in which the patient was bleeding into his venous circulation. This is supported by the comparatively low arterial blood pressure 95–100 mm. Hg and the full, soft, collapsing pulse. The raised venous blood pressure is evidently the cause both of the dilatation of the veins and of the rapid establishment of the condition of chronic passive venous congestion of the abdominal organs which was found post mortem.

Freedom of the blood stream from general infection and absence of suppuration at the site of impaction of the bullet were doubtless due to its uninjured and smooth surface. The absence of any pain at the site of the wound, the intense pain referred to the foot and leg, both at the time of receiving the wound and subsequently, combined with the complete absence of pain in the heart or lungs, are interesting features. Some anginal pain might have been expected during the passage of the bullet through the heart, though the diameters of the pulmonary and triscuspid orifices are sufficient for the transmsssion of the bullet even in its long axis. As shown by X ray the bullet had passed above the level of the umbilicus before admission of the patient to this hospital. Probably the smooth surface of the bullet and its "stream-line" shape helped to lodge it so aptly in the pulmonary artery.

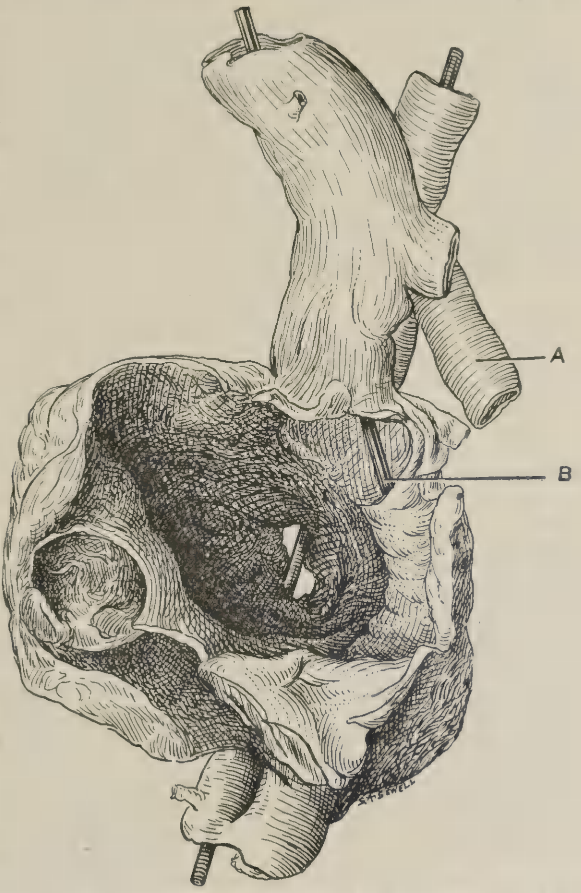

PLATE II.—Arterio-venous saccular aneurysm viewed from behind.

Summary.

The points of interest in this case may be summarised as follows:—

1. The distance and deflected course travelled by a rifle bullet in the blood stream.
2. The power of the right side of the heart to pump into, through and out from its chambers, a foreign body of this size without, moreover, any damage to its walls or valves.
3. The formation of two infarcts in the lower lobe of the left lung by the bullet acting as an embolus.

4. The absence of pain referred to the heart or lungs, the freedom from any syncopal attacks, and the absence of any infection of the blood stream.

5. The condition of marked passive venous congestion established in the short period of a month.

6. The length of time (one month) during which the patient lived with a bullet inside his circulatory system.

The specimen is exhibited in the War Museum at the Royal College of Surgeons (Catalogue number, W.O. 3071).

I am indebted to Lieutenant-Colonel S. G. Butler, D.S.O., R.A.M.C., for permission to use the notes of this case, to Colonel W. Pasteur, C.M.G., and Lieutenant-Colonel C. J. Martin, F.R.S., and Professor Arthur Keith, F.R.S., for their assistance and advice.

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MALARIA AND INSANITY.

BY A. T. W. FORRESTER, M.D. LOND.,

MAJOR, R.A.M.C.; SENIOR ASSISTANT MEDICAL OFFICER, LEICESTER COUNTY ASYLUM.

IN Macedonia malaria was reckoned as far and away the biggest factor in the causation of mental disease amongst our troops. Indeed, the admission-rate of the latter is almost an exact parallel of the malaria curve. The following notes were made of cases which comprise all those arising in the British Salonika Force (and subsequently in the army of the Black Sea), which were eventually admitted into the mental department from a period December, 1918, until October, 1919.

I have only included cases giving a positive history of malaria, whether or no this was the causative factor in the production of mental symptoms, and have endeavoured to arrive at a few conclusions about the psychoses caused by, or arising in, this protean infection. Both the benign and malignant tertian varieties occur, the latter predominating in the autumn months. Except in the causation of cerebral malaria, let it be said at once that no distinction could be drawn between the two for the purposes of this paper.

It appears to me that no new train of symptoms is set up by malaria, and that in comparison with any other acute specific fever it differs only in intensity and in the more selective action of its toxins on nerve tissue. The brunt of the attack falling on the cortical higher centres, we may get the train of symptoms of acute confusion of a cerebral type—the type of mental disorder which occurs very, if not most, commonly. To show a finer differentiation in its choice of nerve cell, I have seen four cases of single nerve paralysis due to malaria, two involving the sub-trapezial plexus alone, others the third and seventh cranial nerves. A heavy and more general segregation of parasites in the brain may give rise to the well-defined cerebral malaria.

Altogether during the above period there were 116 admissions to the mental department giving a positive malarial history. Both on the physical and mental sides they fall more or less into two groups of case: (I.) Those associated with the actual malarial attack itself; (II.) those occurring as a result of repeated attacks. The former are always the more acute and more approximating to a severe delirium. Other things being equal, the prognosis is better, and as a rule they yield easily and rapidly to appropriate treatment.

I. *Mental Symptoms in Association with an Actual Attack of Malaria.*

These comprise 32 cases, of which 9 were primary infections, the remainder occurring during a relapse. They showed that almost any of the recognised types of psychosis can be set up by the malarial parasite, but one symptom stands out prominently amongst them—namely, mental confusion. It was present in 22 cases, or 68·75 per cent. Next in order of frequency was depression, with 12 cases, giving a percentage occurrence of 37·5. Two cases of this group turned out to be cerebral malaria.

The degree of confusion may vary from what may be described as a severe delirium such as occurs in any pyrexia, to a complete dissociation of personality, the latter giving beautiful and typical examples of the occurrence of a definite fugue. These are so important that I will digress for a moment. They include in number 9 cases, while exactly the same number occurred in Group II., or apart from a definite rigor. But here comes out the value of the soil, as of this latter group, 2 were slightly feeble-minded, 2 gave a definite insane heredity, 1 had had St. Vitus's dance when young, and 1 gave a history of a similar attack previous to the malarial infection. In nearly every case some breach of military discipline had been committed, usually a court martial offence, and they were in consequence admitted to the department as prisoners. The commonest charge was, "Absent without leave," other crimes being self-inflicted wounds or destroying Government property In every case there was complete amnesia for the whole period, the shortest of which was a few hours, and the longest three months. One man had been convicted and punished for three similar happenings before his case was recognised, and he was sent down to the base for observation. This serious complication occurred so frequently, as compared with its incidence apart from malaria, that it seems as if this disease must be reckoned as an actual determining cause.

Two cases of acute delirium were started by the malarial attack. One of them is noteworthy owing to subsequent complications. He developed broncho-pneumonia in both lungs and finally meningitis, a pure culture of the pneumococcus being grown from the cerebro-spinal fluid. Eventually this man made an excellent recovery and was able to be invalided home as an ordinary medical case. With confusional insanity no memory of the acute illness was retained.

It has been noted that two cases of cerebral malaria were admitted. Diagnosis here rests on obtaining a positive blood-film. I have seen this very dangerous condition give a picture of cerebral hæmorrhage, of just drowsiness or simple delirium, of violent excitement and violence, or of epileptiform attacks. It was a condition we had always to be on the look-out for, especially during the autumn months, and it demands immediate and energetic quinine treatment by the intravenous method.

Lastly, in the cases of this group heredity played a very unimportant part, as a history of insanity was only traceable in 2 cases. Hereditary suicide was also given in 2, both of whom actually attempted their lives, thus bearing out the usual teaching on this point.

II. *Mental Symptoms as the Result of Repeated Attacks.*

Of the second class of case, 87 in number, alcohol was the cause of the mental disturbance in 7, while 9 suffered from varying degrees of feeble-mindedness. The latter were usually sent down in consequence of frequent entries on their conduct-sheets, punishment having no deterrent effect. In most cases they should never have been accepted for military service. One case was returned "Not insane." In the remaining 70, in which malaria was the determining factor, it was again found that any type of psychosis may be set up. But the prominent symptom is still mental confusion; and almost equally important is now that depression which one would expect to come on as a result of prolonged stress and toxæmia. These, most of them, had been conscious for some time previous to the actual breakdown of a failing in physical and mental vigour. After repeated malarial attacks, prolonged residence in a hot and unhealthy climate, with indifferent food and continual disappointment in the matter of leave, and sometimes bad news from home, it was no wonder that mind as well as body gave way. But heredity here comes in prominently as a factor. Of the 24 cases in which a diagnosis of depression is given an insane heredity was traced in 9; while in 31 cases of confusion 7 showed an insane heredity. In some of them this confusion cleared up in a day or two, others convalescing more slowly.

The onset of well-marked dementia præcox was determined in eight cases. The kind of disorder is shown in the following table, and except for particulars already mentioned they followed out more or less the usual experience in these cases.

Mental confusion	with a definite fugue ...	9	31
	simple	22	
Depression...			24
Dementia præcox			8
Delusional insanity			6
Excitement with violence			1
Total			70

Now, where it is a case of chronic malarial poisoning there is always involvement not only of the cells of the higher centres, but the whole central nervous system shares in the attack. The sympathetic and vagus are affected, giving rise to abnormalities of pulse, tachycardia, palpitation, shortness of breath on exertion. There are frequently cardiac murmurs present, and marked coldness or even cyanosis of fingers and toes. Superficial and deep reflexes are always altered and generally markedly exaggerated. Knee and ankle clonus occur, and I have seen nystagmoid movements of the eyes. There is always a marked anæmia and debility, sometimes a profound cachexia. Spleen and liver are enlarged, and there is, of course, wasting and emaciation.

Prognosis and Treatment.

Unless other causes are at work the prognosis is always good, and is concomitant with improvement in health. Unfortunately, the malarial parasite, especially the benign tertian variety, is extremely resistant even to prolonged and energetic quinine therapy. But as soon as this was instituted, despite the tendency to relapse about the tenth day, patients at once began to mend. With cachectic conditions large doses of quinine are not readily tolerated by the stomach, and by upsetting digestion mitigate against the equally important assimilation of food. Intramuscular administration is of undoubted benefit under these conditions, and I have seen rapid improvement follow this when combined with intravenous galyl. Cacodylate of soda proved disappointing in my hands. And even though one was also frequently disappointed by the reappearance of malarial attacks soon after a course of intramuscular quinine injections, yet these patients always gained considerably in weight and improved in condition. On these grounds alone the course was justified, and in competent hands the method is practically free from risk of complications. The importance of correct and appropriate treatment is a point that is brought out most prominently. It was quite common to be given a history of frequent relapses treated casually with occasional doses of quinine, and no attempt made to control the attacks. Although it is true that the mortality from this disease is extremely low, it must be borne in mind that a potent and powerful poison is circulating all the time, which may flare up at any moment into an acute condition such as cerebral malaria, or result in permanent damage to mind and body.

All cases of malarial psychosis should be removed at once from danger of reinfection. This, with us, was the slowest of processes, and the waiting list of men marked "Hospital Ship" somewhat resembled that of any popular motor-car manufacturer at the present moment. It would be interesting to trace the subsequent history of one's cases, but this proves almost impossible in practice.

Prophylaxis.

I should say that the majority of the cases in Group II. might have been prevented had the true meaning of the danger signals which they had been showing for some time previous to admission been realised. The spirit of "Carry on" does not always lead to the happiest results, at any rate for the individual. But I had men sent for admission in whom the watchful eye of the regimental medical officer had spotted incipient signs. One can say definitely that these cases were saved from proceeding to a well-defined psychosis, and were quickly ready to be evacuated as ordinary medical cases, by this means being saved the undoubted stigma which the word "mental" carries.

As regards malaria itself, I think the theory of quinine prophylaxis has been definitely exploded. Keep up body resistance by good feeding and ordinary hygiene, and place no reliance on drugs.

Dealing with mental cases in the prodromal period, it was interesting and instructive to be able to watch the lines along which definite insane ideas seem to crystallise out. Most of us feel that in preventive medicine lies the future of our science. This, as applicable to mental disorders, is just as hopeful as in any other branch.

One looks forward to the time when mental hospitals, properly equipped, will be set up and run along modern lines, with skilled nursing and the advice of specialists in every branch of our science coördinated, where the atmosphere is one of recovery and not chronicity, and where patients will themselves voluntarily come early for advice, if not for admission. But for this to accrue such a hospital must be removed as far as possible from the word "lunacy." Asylums will unfortunately always be necessary for a certain proportion of cases, but an acute recoverable patient should never see the inside of one of these institutions.

THE BONE DEFORMITIES OF RENAL DWARFISM.

BY HUGH BARBER, M.D. LOND.,
PHYSICIAN TO THE DERBYSHIRE ROYAL INFIRMARY.

IN the last few years a number of cases of interstitial nephritis in children associated with stunted growth have been recorded, some of them with infantilism in all its characteristics, others merely with a marked degree of dwarfism. Until some standard text-book gives a full account of this condition it is not easy to select a suitable name; but as the kidney disease not infrequently has a very insidious onset, and many of the cases seek advice for the first time for want of development or bone deformity, some name such as renal dwarfism may be used. There have been several cases recorded in which an operation has been performed for genu valgum and the patient has died shortly afterwards. Three cases of this disease were recorded from the Derbyshire Royal Infirmary in 1913,[1] and a fourth in 1918,[2] all proved post mortem; but the three cases in this paper demonstrate the insidious nature of the disease and the deformities so well that a further note on the subject may be justified.

Interstitial nephritis in children is usually a somewhat insidious disease, characterised by stunted growth, an unhealthy pallor of the face, urine of low specific gravity, varying from 1010 to 1004, and the presence of albuminuria, small in amount and not always present constantly. But a severe case may show a degree of polyuria and thirst equal to that met with in diabetes insipidus. The cardiovascular changes are slight, it is not easy to demonstrate thickening of the arteries, hæmomanometer readings are not high, and there is little hypertrophy of the left ventricle. Deformities of the bones, very similar to those of rickets, are frequently present by the time the patient approaches the age of puberty. Dwarfism, amounting to true infantilism in some cases, is a marked feature. In the eight cases that have been under my observation development has been fairly normal until the age of 5 or 6 years, after which growth has been very much retarded. The usual age of onset is hard to determine on account of the insidious nature of the symptoms. The fatal cases have died of uræmia without much warning, most commonly about 16 years of age, and probably no case reaches adult life. Post mortem the kidneys are small, the capsule strips easily, the cortex is shrunken, and microscopically there is interstitial nephritis. The ætiology is obscure and the history of any antecedent infectious disease is not a feature. In one or two recorded cases the Wassermann test has been positive; there have been no evidences of congenital syphilis in the cases I have seen and only one positive Wassermann result out of six cases tested.

Deformities Discussed in Detail.

To discuss the deformities in detail:—

(1) *Frequency of occurrence.*—Out of the eight cases five have shown bone deformity, but this does not enable one to discuss the percentage, because four of these five first sought advice for genu valgum; the signs and symptoms of kidney disease are more or less latent, and there may be cases of interstitial nephritis which are never diagnosed at all.

(2) *Age of onset.*—The deformities appear to develop about the time of puberty. I have a very definite history on this point in four cases, and the fifth (Case 1 in this paper) was diagnosed at 12½ years as interstitial nephritis with dwarfism, without bone deformity, and returned on account of recently developed deformities when aged 16 years.

(3) The *genu valgum* appears to develop comparatively quickly, straight legs becoming markedly deformed in a few weeks.

(4) In *type* the changes seem to be very similar to those of rickets; the wrists and knee-joints have been most noticeably affected, but some swelling has been palpable at the junctions of the ribs and costal cartilages.

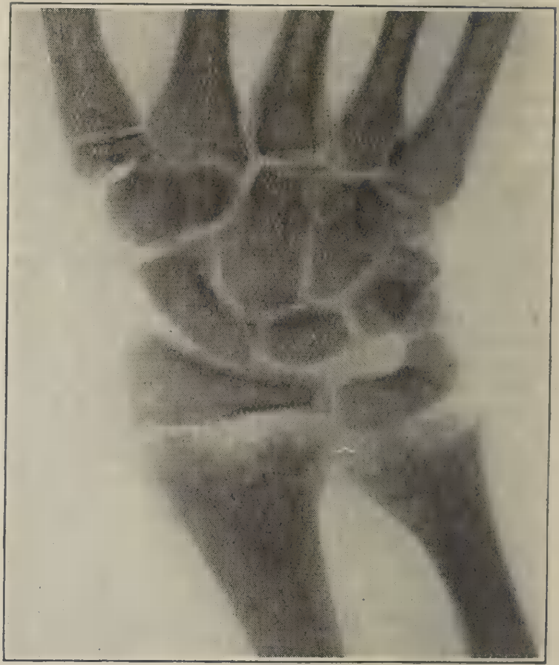

FIG. 1.—Radiogram of the wrist in a case of renal dwarfism, showing zones of proliferation at the epiphyseal lines and irregular calcification. (Case 1.)

(5) *X ray notes* by Major A. E. Milner (see Fig. 1): The changes are most marked at the wrists and knee-joints; there is increase in the size of the proliferation zones, the normal translucent line is greatly increased in breadth, there is not only enlargement, but great irregularity and want of definition due to irregular calcification.

Notes of the Cases.

CASE 1.—W. M., aged 12½ years. First attended in January, 1915, for thirst and polyuria; height, 4 ft. ½ in.; heart and arteries normal, hæmomanometer reading 100 mm.; urine, sp. gr. 1006, albumin present 1 part per 1000, total quantity 41 oz. in 24 hours. He was under observation for three months, and there is a note that no deformities were present. He has had no infectious disease. His next attendance was 3½ years later, aged 16 years, for deformity of the legs. He gave as history that he was at work until he had influenza three months previously, that he was in bed four weeks, and that when he got up his legs were crooked. (See Fig. 2.) On examination: height 4 ft. 4 in. (ten inches below the average), knees and wrists swollen (Fig. 1), legs deformed as in photograph; urine as before. Wassermann negative. Family history: Father alive and well; mother died of chest trouble; one sister, who died of pneumonia; two brothers, the elder a sailor and the younger also healthy.

CASE 2.—M. W., aged $13\frac{3}{4}$ years. Has always been small, walked when two years old, development has been poor since about six years of age, has suffered from thirst all her life, has never had scarlet fever or any other serious illness. She attended medical out-patient department when aged 6 years for blue hands and feeble action of the heart; the urine was not examined. About Christmas, 1918, the legs became crooked, when child was aged 13 years. Admitted September, 1919, for genu valgum and dwarfism; height 3 ft. 9 in. (ten inches below the average), legs deformed (see Fig. 3), knees and wrists swollen, slight beading of the ribs; urine, sp. gr. 1004, albumin a trace (tested on 30 occasions, absent twice), total quantity in 24 hours about 40 oz.; heart and arteries normal; hæmomanometer reading 90 mm., Wassermann positive (tested twice). X ray photos of bones similar to Case 1. Family history: Father and mother healthy, one of seven children, the first two died soon after birth, patient is the third, the others are healthy.

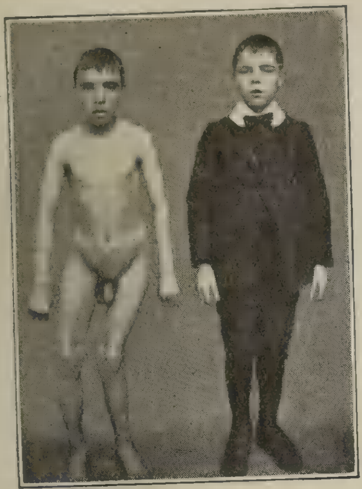

FIG. 2.—Case 1, aged $16\frac{1}{2}$ years; brother, aged 12 years.

Note.—Case 2 has since died of uræmia; the kidneys were very small and fibrotic, weighing 220 gr. each; microscopically well-marked interstitial nephritis.

CASE 3.—Girl, aged 13 years. Admitted September, 1919, to the surgical side for genu valgum, which had developed 16 months previously. On examination height 4 ft. 4 in. (three inches below the average), pubic hair present; urine, sp. gr. 1008, albumin present, one part per 1000 (examined on 22 occasions, absent twice), total quantity about 50 oz. No cardiovascular changes; hæmomanometer reading 100 mm. Wassermann negative. Ten years ago she was in this institution diagnosed as diabetes insipidus; urine, sp. gr. 1008 to 1010, albumin not found. She contracted scarlet fever and was transferred to the isolation hospital. The mother says she has always been thirsty and the legs weak, but was otherwise well; had had an attack of measles. Family history: Father and mother healthy, one healthy brother, one brother died of heart disease.

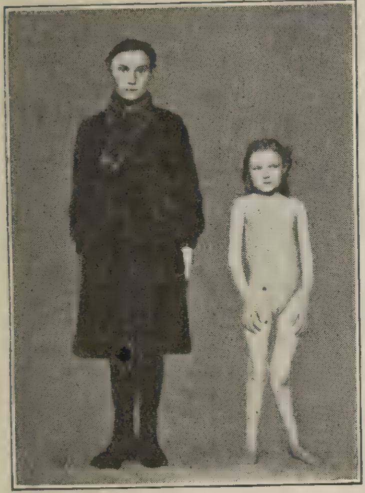

FIG. 3.—Case 2, aged 13 years; sister, aged 11 years.

Facts Showing the Insidious Nature of the Disease.

The following facts, which appear in the notes of the cases, may be selected to emphasise the insidious nature of the disease.

(*a*) Case 1 was diagnosed at my out-patient department, aged $12\frac{1}{2}$ years, with straight legs; he attended for a month or two and returned three and a half years later on account of recently developed genu valgum.

(*b*) Case 2 attended as an out-patient under one of my late colleagues seven years ago for "weak action of the heart" and blue hands; urine not examined.

(*c*) Case 3 was admitted to this institution ten years ago, diagnosed as diabetes insipidus, with urine of low specific gravity free from albumin. She was sent up this time as a surgical case of genu valgum.

References.—1. H. Barber, Brit. Med. Jour., November, 1913. 2. H. Barber, THE LANCET, 1918, i., 142.

AN IMPROVED TECHNIQUE FOR THE STAINING OF SPUTUM FOR TUBERCLE BACILLI.

BY A. DISTASO, D.SC.

THE routine examination of sputa for tubercle bacilli conducted on any large number of specimens precludes the use of the many methods of concentration, of which the antiform method is probably the best. The errors inherent in the ordinary spread slide method are numerous, and no doubt account for the unsatisfactory results obtained. The method here outlined overcomes some of the difficulties and raises the percentage of positive results by at least 25 per cent., besides affording a film which is restful to the eye and easy of manipulation. It takes less time in execution than the ordinary method. The method allows for twice the usual amount of sputum, secures the easy solution of the tough muco-purulent pellets, and gives an even film and a very transparent counterstain.

A thick portion of the sputum or several muco-purulent pellets are selected and transferred to the slide. One drop of 5 per cent. NaOH is added and the sputum emulsified, with the aid of heat, into a transparent gelatinous mass, which is spread evenly and set to dry in the incubator. When perfectly dry it is immersed in fuchsin, warmed to incubator temperature, and allowed to remain in the incubator for 15 minutes. It is then washed in equal parts of Esbach solution and water, decolorised with 25 per cent. nitric acid until faintly pink, and then washed in water, in 60 per cent. alcohol, and then again in water. The counterstain used is malachite-green (1 part of saturated alcoholic solution in 19 parts of water) for 30 seconds to one minute, and the slide is rinsed and dried.

Six thousand sputa have been examined both by the routine method and by this method, in which positive films show two to three times the number of bacilli. In my statistics the ordinary method yielded one positive film in four, in the new method one positive in three. Malachite-green gives a soft pleasing ground-work in strong contrast to the bacilli and materially lessens the labour of the search. Large numbers of slides can be manipulated in mass.

University College, Cardiff.

RESECTION OF THE RECTUM FOR CANCER.

BY P. LOCKHART-MUMMERY, F.R.C.S. ENG.,
SENIOR SURGEON TO ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, AND TO THE QUEEN'S HOSPITAL FOR CHILDREN, ETC.

(*With Illustrative Plates.*)

HITHERTO operations for the removal of the rectum for cancer have compared unfavourably with such operations as removal of the breast, &c., chiefly because they have been accompanied by a high mortality, or because they were only possible in a small proportion of the cases seeking treatment. The dangers of the operation have been mainly two—shock following a long and serious operation in an elderly patient, and sepsis.

The technique of the operation here described has been slowly evolved, and it has the advantage of overcoming to a large extent both these difficulties. I have for some years been trying to find a technique which would enable me to remove the rectum for cancer with a reasonable degree of safety and without the serious mortality which has hitherto accompanied rectal excision, and which would be applicable to all cases where the growth had not already invaded vital organs or set up metastatic deposits. The fact that in 1918, the fourth year in which I had used this technique as a routine method for growths of the rectum, the mortality was nil, although the largest number of operations were performed in this year (24), has encouraged me to think that the details of this operation are worth publishing.

Mortality and Causes of Death.

During the last four years I have used this technique in removing the rectum for cancer in 65 cases, of which 37 operations were performed in hospital and 28 cases in private. Five deaths occurred among the hospital cases, and no deaths among the 28 private cases. The most satisfactory feature, however, is that during 1918, when I and my assistants had had more experience with the technique, the mortality in the 24 cases operated upon during the year by this method was nil.

Year.	Number of cases operated on.	Number of deaths.
1915	8	1
1916	16	2
1917	17	2
1918	24	0
Total	65	5

The mortality from operation during the four years covered by the figures accompanying this paper is higher than it should be, as two of the deaths were exceptional and not attributable to the operation. Thus one patient died from hæmophilia and one died suddenly from cerebral embolism 13 days after the operation. In the former case the patient had come all the way from South Africa on purpose to have the operation, and was known to be a congenital hæmophiliac. He fully understood the special nature of the risk he ran, but wished to have the operation performed. The pathologist was called in, and three weeks were spent in getting his blood coagulation-time up to the normal before attempting the operation. In spite of this, however, the typical bleeding occurred, and proved fatal ten days after the operation. Of the other three deaths two were due to sepsis and one to hæmorrhage.

Advantages of Method of Operation Used.

The technique of the operation described here makes it possible to perform an absolutely aseptic operation from start to finish, and so abolish the chief cause of mortality—namely, sepsis in some form or another. Owing to the fact that the removal of the rectum of necessity leaves a large cavity, which cannot be filled up except by blood clot, primary union only occasionally occurs. More commonly there is a small cavity which heals by granulation in the course of three or four weeks. Convalescence, however, should run an aseptic course with a normal temperature. In some cases primary union has been obtained, and the wound has remained perfectly dry after the third day. Such cases have generally been women in whom the pelvic organs readily fall backwards and fill up the cavity left by the removal of the rectum.

The other great improvement in the technique has been the method of anæsthesia. It was recognised that two things must be aimed at—complete protection from shock in any form, and absence of vomiting after operation. Vomiting is particularly undesirable after excision of the rectum because it tends to break down the new peritoneal floor of the pelvis and produce a hernia in the wound, and it also tends to set up secondary hæmorrhage. The necessary conditions have been attained by using gas and oxygen, or twilight sleep, combined with spinal or local anæsthesia. No other anæsthetic at all is used. When spinal anæsthesia is used great care is taken to see that the patient is kept with the head slightly down from the time that the anæsthesia begins until all sensation in the legs has returned. This is, I believe, most important in protecting the patient against the effects of gravity during the time that a large part of his vasomotor system is paralysed. As a result of this precaution there has been only one case of slight headache in all the cases and no other after-effects. Local anæsthesia gives equally good results, but is more troublesome.

One very marked advantage of this technique is that it has rendered it possible successfully to excise the rectum of patients in whom operation by any other method would have entailed impossible risks. I have not hesitated in the last three years to perform excision in patients as old as 73, provided other factors were favourable, and also in cases where other serious disease was present; and so far my confidence has been justified in that all the patients have pulled through without mishap. There were 20 patients over 60 years of age and 4 over 70. Two patients had bad chronic bronchitis, one had albuminuria, one old-standing locomotor ataxia, one bad Graves's disease with a pulse of 130. All these patients came through without complication.

It has long been my view that no operation for cancer of the rectum can be considered satisfactory unless it can be used with a reasonable degree of safety in cases where the patient is a bad subject, as the majority of patients suffering from cancer of the rectum are necessarily bad subjects owing to fat, age, or complicating disease. An operative technique which requires that the patient shall be a first-class subject will either be accompanied by an appalling mortality or will only be available for a small percentage of the cases requiring treatment.

This operation is suitable in any case where the growth is at the anus or anywhere in the rectum proper, provided that it is not fixed to important structures. It cannot be performed if the growth

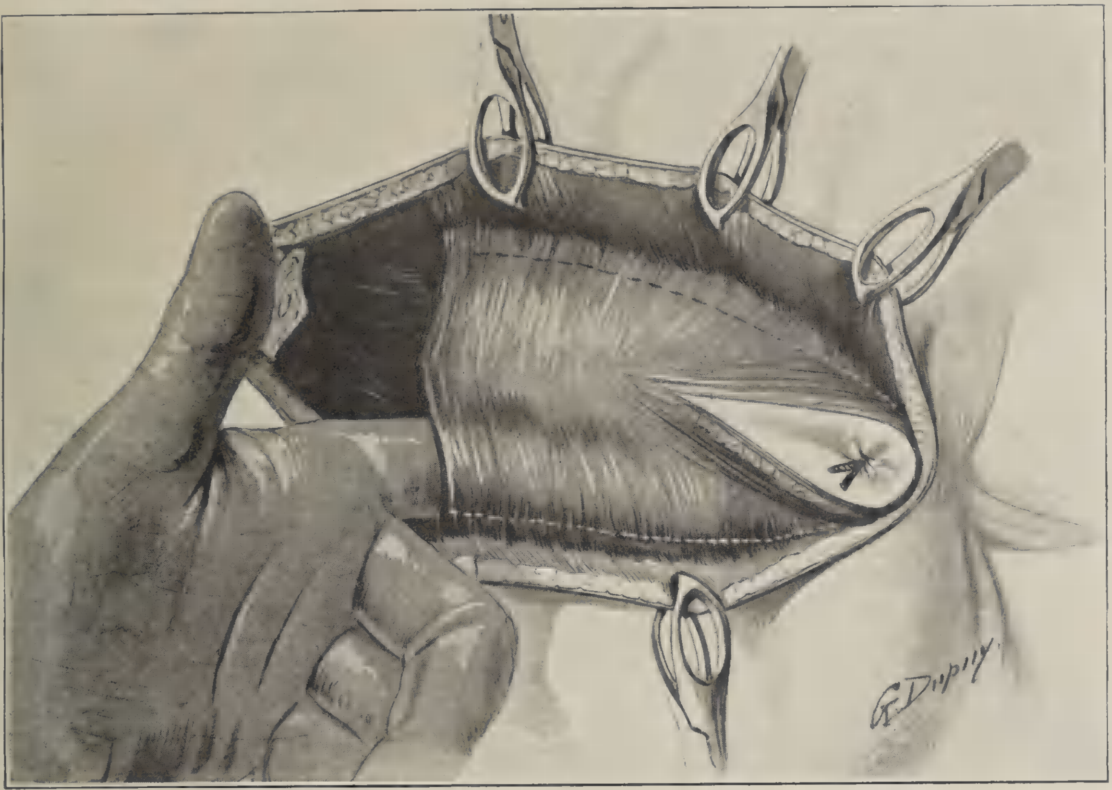

PLATE I.—Showing the method of dividing the fascia and levator ani muscle where it is reflected from the pelvic wall on to the rectum. The first finger is passed deep to the muscle and the division made with scissors along the dotted line, the lower side being cut first. Previous to this the fascia is cut through transversely as shown.

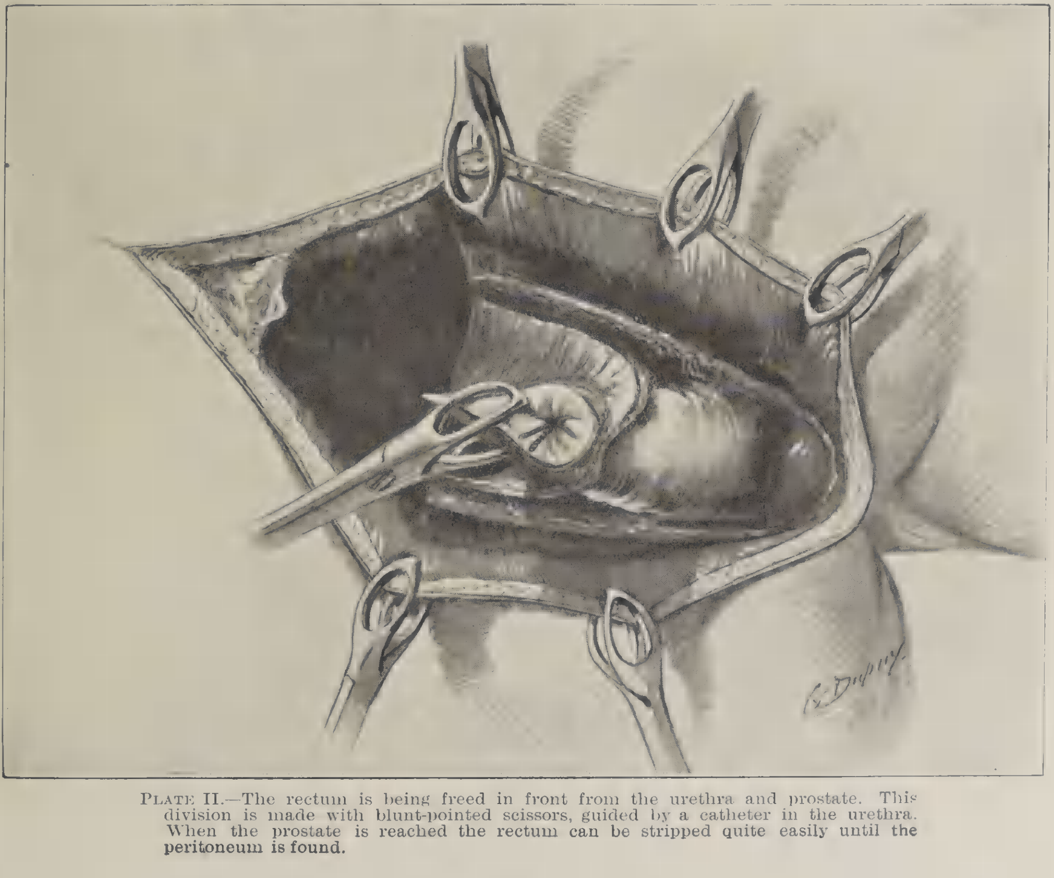

PLATE II.—The rectum is being freed in front from the urethra and prostate. This division is made with blunt-pointed scissors, guided by a catheter in the urethra. When the prostate is reached the rectum can be stripped quite easily until the peritoneum is found.

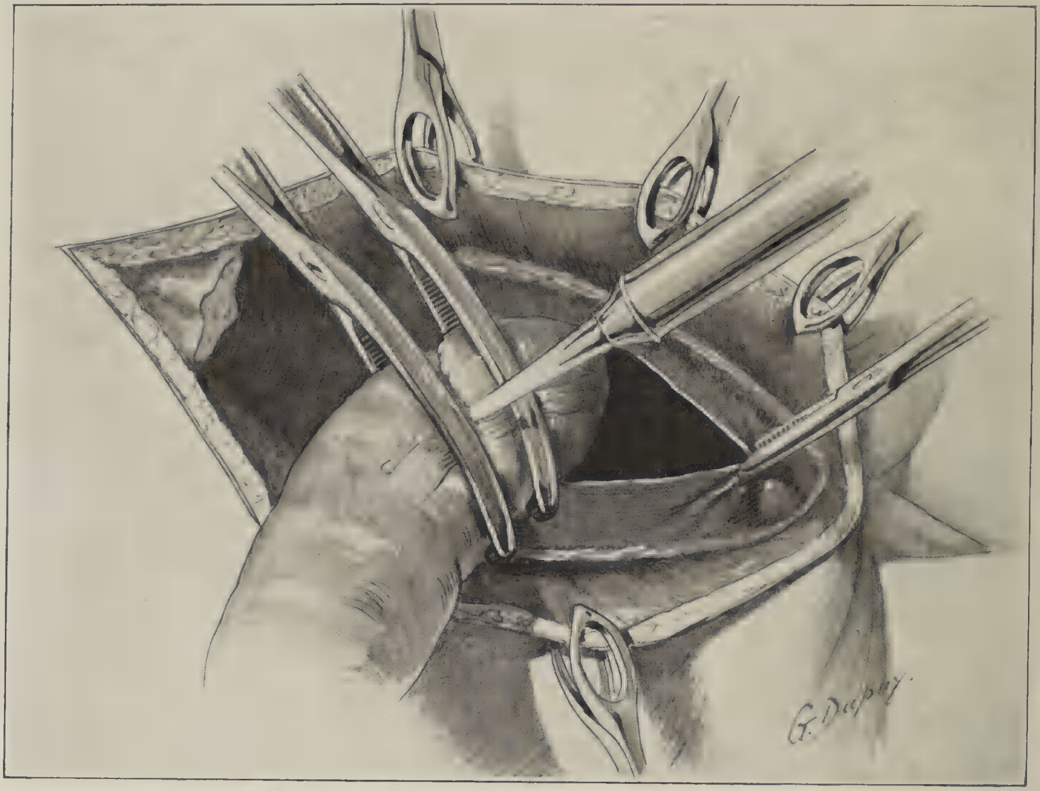

PLATE III.—The rectum has been freed and the peritoneal cavity opened. The meso-rectum has been tied off. Two clamps have been applied to the sigmoid and the bowel is being divided between them with a cautery. The peritoneal cavity is shown open; in reality it would be packed off with gauze tampons, as would the whole wound.

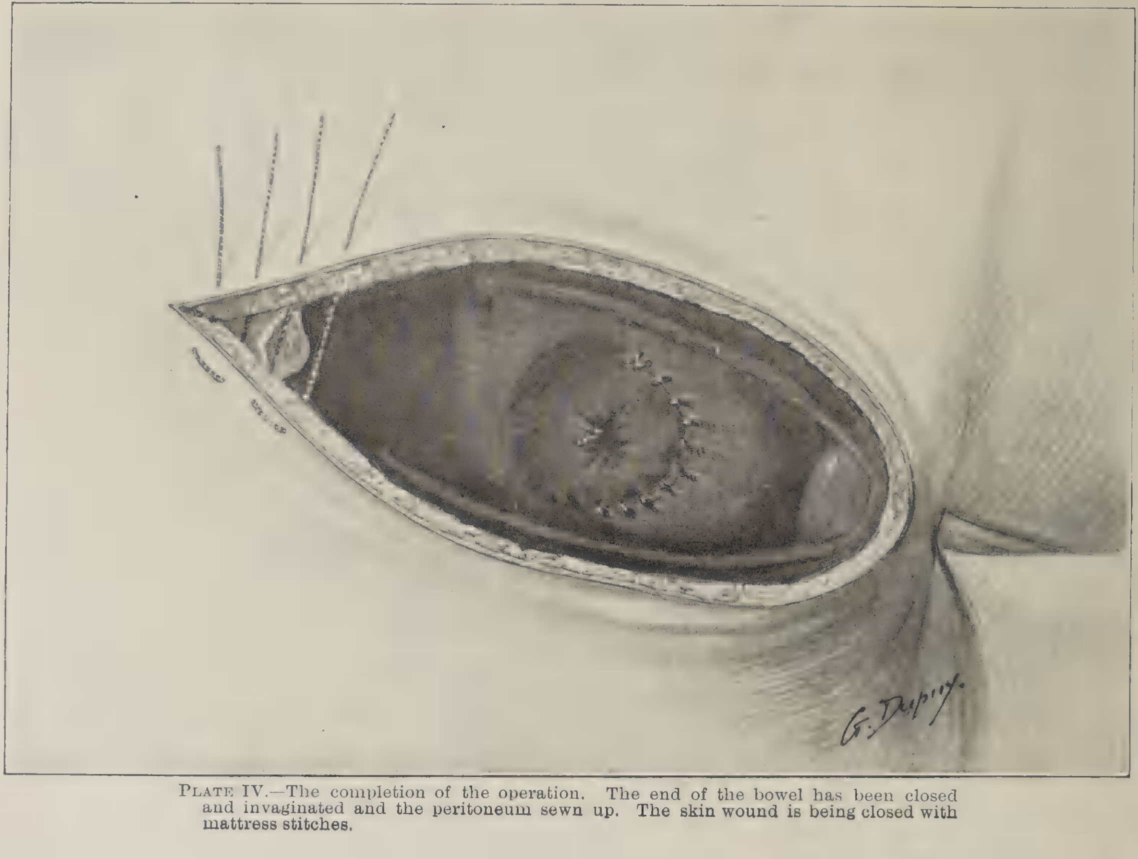

PLATE IV.—The completion of the operation. The end of the bowel has been closed and invaginated and the peritoneum sewn up. The skin wound is being closed with mattress stitches.

is at or above the recto-sigmoidal junction unless the growth is small and the sigmoid fairly lengthy.

Description of Operation.

The operation is performed in two stages as a rule, but this is not essential unless the patient is old or unless some degree of obstruction is present. The first operation consists of a colotomy performed through the left rectus, fairly high up; this is done under gas and oxygen and local anæsthesia. At the same time the opportunity is taken of examining the abdomen for secondary deposits and, if necessary, the upper limits of the growth for adhesions to the bladder, &c. The colotomy is opened two days later, and the lower bowel and rectum are then washed out daily from the lower colotomy opening. In cases where the growth is small and situated near the anus it is often possible to leave the patient with a sacral anus if there is any special reason for doing so.

The second operation is performed a week or ten days later. The patient is not starved beforehand; he is only deprived of breakfast on the morning of operation. Heroin or morphia and atropine are given about three-quarters of an hour before operation unless "twilight sleep" is being used, when scopolamine and morphia are substituted. The operation is performed in the left semi-prone position. Before beginning the operation a No. 8 gum elastic catheter is tied into the bladder, if the patient is a man, in order to act as a guide to the urethra during the operation. The first step in the operation is to pass a stout silk ligature round the anus subcutaneously with a curved needle. This is tied up tightly so as to exclude the anus entirely. After this the skin all round is thoroughly painted with iodine and the towels are put in place. The surgeon does not wash up or put on his gloves till after he has closed the anus. The incision is made starting from the base of the sacrum and carried forwards in the mid-line surrounding the anus, and well clear of it to meet about 1½ inches in front. This incision is then deepened, cutting well away from the rectum into the fat. The coccyx is disarticulated, or, in case this should not give room enough, some of the sacrum is removed. The deep fascia is opened just in front of the sacrum, and the first finger of the left hand is passed deep to the left levator ani muscle, and the latter cut well away from the rectum with scissors. The same is then done on the right side. The next step is to dissect the rectum away from the prostate or vagina in front. This is easy in the female, but rather difficult in the male. The catheter tied into the urethra is a useful help, as it can be felt through the wound, and prevents one from getting in front of the prostate. This part of the dissection must be done boldly with scissors, care being taken not to injure the rectum, as this would involve a septic wound. After the wound in front of the anus has been deepened about 2 inches the lower edge of the prostate will be reached, and the rectum will strip easily. The peritoneum will now come into view and should be opened and cut back along the sides of the rectum. The rectum and growth are now free except above. The mesorectum is now cut through as high up as possible, and the vessels in it caught with forceps and tied off. Only the bowel now remains to be divided. This is done between two clamps with a Paquelin cautery. The stump of the sigmoid in the upper clamp is now invaginated by a catgut Mickulicz stitch, and further protected by a mattress stitch outside this. The peritoneum is next closed by a continuous catgut stitch. The wound is then closed except for a single drainage-tube at the lower angle. Lately I have discarded the drainage-tube entirely. The operation has sometimes been performed in 35 minutes, and unless special difficulties are encountered it should not take more than 45 minutes. If in a female the posterior vaginal wall is involved it may be removed together with the rectum. In several cases I have removed the whole posterior vaginal wall, and in one or two cases the greater part of the prostate; in one case also a large portion of the posterior wall of the bladder.

After-treatment.

The patient is generally out of bed in 14 days, and usually able to return home in three weeks. There is one factor in the after-treatment which is a departure from common practice—namely, that ordinary solid food is given from the start. No alteration in the patient's usual diet is made, and he is given an ordinary meal as soon as he wants it. Beef-tea and milk are strictly forbidden. To ensure asepsis of the wound 1–20 carbolic dressings are used and changed twice daily.

Question of Recurrence of the Growth.

It is obvious that these cases are too recent to afford any useful guide, but my impression to date is that the results are quite good on this count.

The Degree of Disability.

This is very important, and difficult to gauge accurately. The resulting disability is almost entirely due to the colostomy opening. It is undoubtedly much less than in cases where a sacral anus has been left, as there is no trouble from prolapse of mucous membrane with a modern colostomy opening.

Out of 17 hospital cases in whom it was possible to investigate the disability from a wage-earning point of view, it was found that 12 had returned to work within a year of operation; 4 had not, and 1 had been obliged to take a lighter job. Those returning to work included persons in the following occupations: engine-driver on the railway, actor, washerwoman, workshop foreman, drapery assistant, munition worker, physical drill instructor, and stevedore. The disability would appear to be surprisingly little.

Summary.

The chief points in the operation are:—

1. The anus is sealed up before the operating field is prepared, and at no stage of the operation is the bowel mucosa exposed.
2. The freeing of the rectum in front is done from the perineum upwards; the only guide during this dissection in the male is a catheter in the urethra. Once the prostate is reached the dissection is easy, but care must be taken not to open the rectum.
3. The peritoneum is opened from the front of the rectum when reached.
4. The bowel is divided with the cautery between clamps, and the end invaginated.
5. The wound is closed, and the drainage-tube, if used, is removed in 36 hours.

As regards the blind portion of bowel below the colotomy opening, I have never seen any trouble result from it beyond a sinus which in a few cases persisted for some months. I have two cases in which this operation was performed over seven years ago, and neither of these patients suffers any inconvenience from the blind portion of bowel.

DIRECT INFECTION IN TUBERCULOSIS.

BY E. WARD, M.D. CAMB., F.R.C.S. ENG.,
TUBERCULOSIS OFFICER, SOUTH DEVON.

THE large number of possible sources of infection make it difficult to estimate the frequency of direct (patient to patient) infection in tuberculosis, but the existence of the difficulty is no reason why an attempt should not be made. The question can best be studied in rural or semi-rural districts, such as South Devon mainly presents. Moreover, the work of tuberculosis officer in South Devon is carried out entirely in the *homes* of the patients, thus affording far better opportunities for such observations than any work done solely at dispensaries, sanatoriums, or hospitals. As an illustration may be cited the case of a girl, aged 20, living in an isolated farm, who developed acute tuberculosis and died within three months of the onset. Taking a history in the usual way, there did not seem to be any likelihood that she had been in contact with another case of tuberculosis, but on examining, among others, a brother, who seemed breathless, and an aunt staying in the house, who had a cough, both showed physical signs of pulmonary tuberculosis. The aunt's sputum contained tubercle bacilli; the brother refused to send his sputum away for fear the result might interfere with his dairy work. Apart from a home examination these two cases would never have been discovered.

Method of Investigation.

In considering the probable origin of each case four headings have been used.

I. Immediate infection.—This corresponds to "direct" infection, as the term is generally used, and is here applied to cases known to have been in intimate contact with a source of infection within a short time of the development of their first symptoms. For example, a woman with advanced tuberculosis stayed at a farm on the moor from February to July, when she died. A child of 13, one of a family of five occupying the house, began to be ill in May, and in August was laid up with a large pleural effusion, apparently of tuberculous origin. This is classed as *immediate infection*. The word immediate is used to differentiate this class from the next.

II. Remote infection, in which the patient has been known to be in intimate contact with an infective case, either in early life or at some time separated by an interval of years from the appearance of the first symptoms.

III. No traceable infection.—This explains itself.

IV. Doubtful.—These are cases in which the evidence of immediate or remote infection is not sufficiently clear to bring them under these headings, while yet the probabilities of a direct infection are too great for them to be classed under III.

The history of all these cases was taken before the idea of the present paper had occurred to me, so that the results are not coloured by any preconception. The control cases were those seen for the sake of an opinion or after notification, but which were diagnosed as non-tuberculous either at the first visit or later. The history of these was taken in exactly the same way as the rest, and before a diagnosis was made.

Results.

In a first series of 252 cases of all ages and both sexes 102 were found to arise from immediate infection, 47 from remote infection; in 78 there was no traceable infection, and 25 were classed as doubtful.

An entirely new series was then started, this time excluding all patients under 16. This gave, out of 316 adults, 140 due to immediate infection, 44 remote, 112 no traceable infection, and 20 doubtful. Among 96 children under 16 we found 71 cases of immediate infection, 2 of remote, 22 no traceable infection, and 1 doubtful. Out of 102 non-tuberculous control cases, investigated in the same way as if they had been tuberculous, 5 could be classed as cases of immediate infection, 7 as remote; in 84 there was no traceable infection, and 6 were doubtful.

There has been no selection of any kind for these series. Surgical tuberculosis, of which there were a number of cases among the children, is included, also invalided soldiers who, as would be expected, considerably increase the numbers of no traceable infections. For instance, out of 77 tuberculous invalided soldiers there were only 4 cases of immediate infection, 20 of remote infection, 51 no traceable infection, and 2 doubtful.

There are also included various birds of passage, visitors, in whose case a history of direct infection was harder to trace, and a few better-class patients who likewise swell the numbers of the no traceables. Unfortunately, I have not yet gone over a sufficient number of histories of the birds of passage and well-to-do patients to make a separate series of them. Eliminating the soldiers alone would bring the percentage of immediate infections over 50. The more the family and their movements are known to me the greater the number under the heading I.

Discussion.

The authoritative view, and the one most generally accepted, is that direct infection in tuberculosis is negligible, and that measures taken to prevent this are waste of time or almost useless. (Many, it is true, would admit an exception in the case of children.) Someone has said, "Whatever is generally accepted is usually untrue"; and although this is an over-statement for the epigram's sake, it is certainly unsound to regard anything as true merely because it is generally accepted. Cases of tuberculosis may be divided ætiologically into (1) those due to a remote childhood infection, often untraceable, which has been rekindled in later life by overwork, illness, poverty, or other debilitating influence; and (2) cases due to an immediate infection, at any period of life, with sufficient virus to break down the patient's resistance at the time. This may be a larger or smaller dose according to the resistance of the individual, but very few humans can withstand a dose of tubercle bacilli if it is sufficiently massive.[1]

The recognition of these two classes is most important in regard to measures for the elimination of tuberculosis. Better housing, better wages, and so forth are helpful, but whatever is done overwork, poverty (often due to laziness or self-indulgence), and illness can never be abolished, and so the first class is largely beyond our reach. On the other hand, cases of clinical tuberculosis due to immediate infection can be prevented, and when we have gone so far it may well be found that incidentally the other class of case has ceased to occur.

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[1] There are also intermediate cases between these two classes, in whom there is more or less broken health from the time of a childhood infection to a final, fatal breakdown in adult life.

The main channel of infection, and the only really important one, is from the sputum of a tuberculous patient. Bovine infection, urinary infection, and even the more important source from discharging sinuses, are all of secondary importance.

Fortunately, moreover, the majority of cases of pulmonary tuberculosis are not infectious, or only slightly so, if reasonable precautions are taken. It is the advanced case, that may take from 2–15 years or more to die, that is the danger (possibly also the so-called "innocent" cases). One such advanced case may in course of time give rise directly to 100 or more new cases, and indirectly to ten times this number. Yet in all discussions on the prevention of tuberculosis the speakers confine themselves to housing, poverty, sanatoriums, dispensaries, &c., and no serious attempt has been made to deal with tuberculosis as an infectious disease.

The attitude of the public, of our profession, and of the law towards infection in tuberculosis may justly be likened to "straining at a gnat and swallowing a camel."

On the one hand, I know of cases where the clergy have been unwilling to visit tuberculous patients on account of the risks. One wealthy man asked, through his solicitors, for the removal of a girl on his estate because she used to sit in a cottage garden within 50 yards of one of the roads to his mansion, though quite half a mile therefrom. The chairman of a hospital committee asks that a case of spinal caries be removed from hospital because tuberculosis is not allowed in the hospital for fear of infection. The house surgeon at another hospital refuses to admit a case of pleural effusion because "it is not fair to the other patients to admit these tuberculous cases!" The mistress of a maid who has a slight hæmoptysis will not allow her to remain in bed for a day or two in the house where she is in service, but insists on her immediate removal to the union infirmary for fear of infection. A medical officer of health insists on the isolation or removal of a boy at an orphan home because he has been notified as a case of tuberculous adenitis, when 30 per cent. of the other boys have a similar condition more or less marked. The risk of infection in all these cases was purely imaginary. This I call straining at a gnat.

On the other hand, I know of an infective case of tuberculosis engaged in distributing milk. His habits are none too clean. He goes out early in the morning, and has his morning cough over the milk. I know another case with about half an ounce of sputum daily, often highly infective, who is engaged as a butcher (although meat from a cow with a tuberculous udder is not allowed to be sold). In another case an untrained woman, who spends most of her time attending an advanced case of tuberculosis, spends the rest of her time in the dairy preparing cream and butter for the market. I am authoritatively informed that there is no legal remedy for any of these cases. The law recognises the danger of the relatively unimportant bovine tuberculosis, but does not trouble about an infective human. This is swallowing a camel.

I know again of one practitioner who advised a landlady to get rid of a lodger with glandular tuberculosis, quite uninfective; and of another who advised that a child with bronchitis should sleep with a grandmother who had advanced tuberculosis because it was warmer; yet another practitioner notified a man employed at a boys' school only after two years' treatment, and when the disease was far advanced, giving as his reason for the delay that if he had notified the case previously the man would have lost his job.

Illustrative Cases.

The following is an account of two cases which illustrate how tuberculosis is spread:—

1. An invalided soldier is found with his wife and two young children occupying two rooms. This patient is highly infective and brings up half a pint of sputum daily. He is sitting shivering over the fire before which the children are being washed. At his side in the fender is a dry spittoon with sloping sides; at the bottom of the spittoon is dry or drying sputum, on the sides are blobs of sputum, and starred all round the receptacle is more sputum where the patient has made "bad shots" at the spittoon. I was able to get this man a separate bedroom, and a few months later to persuade him to go into a tuberculosis hospital, where he died. When the family were seen again, four months after his death, the wife had been getting thinner and had physical signs of active disease at both apices, one child was ill with pulmonary and glandular tuberculosis, and the other a suspect. A child born since the husband's death was the only healthy member of the family. Others might interpret this as a case of hereditary predisposition and selective mating, but such an interpretation would seem far-fetched.

2. On another occasion I visited a young man of 25 in a seven-roomed house with nine inmates. The patient, who has advanced disease, lies in a room adjoining the kitchen and where the family frequently have their meals. The room is a sitting-room with a bed in it, and in the centre stands a large table. Alongside the patient's bed two or three newspapers are spread as a receptacle for his sputum, the mother informing me that he will not use anything else. Scattered over the paper are lumps of nummular sputum in varying stages of desiccation. On the carpet beyond the papers are a few more nummuli, and on the table leg there is a mass which has hit the leg high up and trickled downwards some 18 inches. Between the papers and the door, and on into the front room, are traces of sputum carried on the feet of visitors. The patient has since died of tuberculosis, and also one sister; one brother has been in a sanatorium recently, but is still ill; another sister is in a sanatorium now. I have not examined all the household yet, as the family consists mainly of adults, and therefore difficult to find in at the same time; but so far all that I have seen are tuberculous, including a New Zealander who married a sister of the patient and went to live there. Yet these people were somewhat apathetic and careless about the whole matter.

I have sometimes found a little colony of tuberculous persons in a more or less isolated spot, such as one street of a village, and I am inclined to attribute the existence of the colony to conditions of infection similar to those described, rather than to the influence of the local climate or the prevalence of some special wind.

Reply to Previous Criticisms.

I should like also, if so permitted, to take this opportunity of replying to the kindly and courteous criticisms in an editorial published in THE LANCET of Oct. 11th, 1919, dealing with my paper on "conjugal tuberculosis."

1. The difficulty in comparing the work of some older writings in this field is that pulmonary tuberculosis meant to them what we should call advanced disease; they would not classify as tuberculous a patient with a few symptoms and physical signs, who gradually got better and not worse. Even now the surgical conception of a

tuberculous joint (knee, elbow, &c.) is that of advanced tuberculosis of the joint, though, indeed, there are many stages before a typical "white swelling" is produced.

2. It is said that German insurance offices do not reject persons because of a history of exposure to infection, even to conjugal infection. Writing under correction, I do not think this is true of countries other than Germany. Other factors come into the calculation, of course, but short of rejection I think the lives are usually "weighted" in one way or another. Moreover, the class of patient of whom I write does not come into insurance statistics to any extent, for, except perhaps in a "death club," they do not usually insure.

3. It is quite true that my figures apply to rural areas, but such an area is surely the most suitable for studying the spread of tuberculosis. Just as the dermatologist looks at the edge of an eruption to discover its nature, so problems of this kind are best investigated in rural areas where people do not move about much, and where the history of individual lives is much better known.

The objection that many cases included may be virgin soil is quite sound. I would add, virgin soil or relatively virgin soil (though, as a simile, a relative virginity does not appeal to me), meaning that in addition to cases receiving in childhood a dose of bacilli which protects them there are others whose dose is insufficient to give more than a slight protection. The number of the insufficiently protected, in town as well as country, must be very great, and accounts, perhaps, for a large number of our tuberculosis deaths. The number of children, moreover, who lose their lives in the process of immunisation is also great. It would surely be better to make our aim the *detuberculisation* of the community rather than fatalistically to regard tuberculisation as permanently inevitable and meet it only by indirect means. A similar view was held as to small-pox before Jenner's time.

4. The criticism concerning the influence of poverty is also sound. I do not think my statistics would apply to the well-to-do. Everyone must admit that if the resistance is lowered by subnutrition, worry, and overwork the liability to tuberculosis must be increased. But poverty also increases the possibilities of infection; it means more intimate contact with the patient, smaller rooms, and windows closed for the sake of warmth. Again, poverty is too often accompanied by ignorance of the risks of infection and of the most ordinary precautions. In a poor household one frequently sees a casual indifference to infection, or openly preached fatalism (generally by grandmothers), while among the better classes there exists almost a terror of infection, and the tuberculous patient is made a leper indeed.

5. With the last paragraph of the editorial I entirely agree. It is by no means necessary to separate all the tuberculous from the non-tuberculous. Massive infection is what really matters, and commonsense measures of prevention are all that is needed. But no such measures have yet been attempted.

To Dr. C. Muthu (THE LANCET, Oct. 18th) I would say that I did not intend my paper on conjugal tuberculosis to be a record of the "mere presence of tuberculosis among married people or among those living under the same roof," but a study of the incidence of tuberculosis among the mates of tuberculous persons *compared with* the incidence among contacts of tuberculous persons other than husband and wife, and *controlled by* an examination of the contacts of patients to be considered non-tuberculous. Moreover, I make no claim to be always right. If my conclusions are correct it is important that they should be recognised and acted upon; if I am wrong the truth will only shine more brightly for contact with my errors. To Dr. R. C. Holt (THE LANCET, Nov. 8th) I would say that he is probably quite right, but that I am anxious not to spoil a good case by any apparent exaggeration. (I was in general practice myself for several years.) Apart from public criticisms I have been surprised at the number who have written expressing agreement.

Suggestions.

I have no wish to decry in any way the attempts to improve housing conditions, to preach hygiene, and eliminate poverty, but we seem to get no further with tuberculosis, and I feel convinced that the only way to tackle the problem is to consider it as primarily and mainly a problem of infection, and to deal with it on these lines. So far, as I have tried to indicate, this has not been done. The Royal Society of Medicine discusses the problem, but infection is regarded as a secondary matter and comparatively unimportant, and I read in vain through the speeches at the recent antituberculosis congress for any sign that the speakers regard the problem as one of infection. Much has been, and still is, hoped for from the new Ministry of Health and its advisory council, but so far we seem merely to revolve more vigorously round the same circle: housing, hygiene, more sanatoriums, more dispensaries, elimination of poverty, better feeding, and so forth. Yet I believe that the present Government is more ready than any we have had in the past to act energetically for the benefit of the community, and on the right lines too, if only it is advised definitely and forcefully enough.

Apart from the application to tuberculosis of regulations similar to those in force for other infectious diseases there is an unlimited field for research in other methods of preventing the infection.

For instance, it occurred to me some time ago that chlorine being highly inimical to the tubercle bacillus the frequent inhalation of a spray containing dichloramine T. of suitable strength might render an infective patient less infectious or even non-infectious. Unfortunately pressure of work, and war time, have prevented me from going very far on these lines, but I am encouraged to continue, and similar experiments with other drugs might be tried. The inhalation of very diluted oxides of nitrogen seems to assist the prevention of influenza; may we not find some similar method of value in tuberculosis?

Then let us have written in plain English and scattered broadcast a short circular explaining that tuberculosis is an infectious disease, but that fortunately only a minority of those affected, and mainly advanced cases, are infectious to others, and setting forth also the best way to avoid infection. People want a clear lead in this matter. It is very little use to go on repeating to the public that there is no practical danger of infection when every educated adult member of society can recollect, in his own personal experience, what seem to him clear cases of infection. Such statements give him a mistrust for his advisers, and this reacts in more ways than one.

ON INDIARUBBER WOUND DRAINS.

BY ARTHUR EDMUNDS, C.B., M.S., F.R.C.S.,
SURGEON, KING'S COLLEGE HOSPITAL; SURGEON,
GREAT NORTHERN CENTRAL HOSPITAL.

FOR some time past I have employed the following devices for drainage, which, though probably not original, have proved extremely useful.

1. It is often desirable to drain the rectum by means of a rubber tube inserted into the bowel to allow the passage of flatus and to prevent concealed hæmorrhage. For this purpose two large holes can be cut in the side of the tube opposite one another; the tube is then split down into these holes with a pair of scissors, giving an apparatus which Fig. 1 amply explains. The method of using this is shown in Fig. 2. The large holes weaken the tube at a definite point, and enable it to be opened out on a sort of hinge, so that the split portions lie comfortably in the middle line along the natal cleft, where they are kept in position by a pad.

FIG. 1.

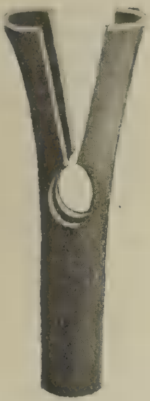
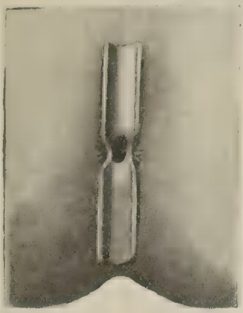


FIG. 2.



2. For the drainage of acute empyemata. This method of cutting a drainage-tube is shown in Figs. 3 and 4 and is a modification of the preceding device. I originally used the rectal tube which I have just described, but the movements of the chest wall tend to suck the tube in or to push it out, so that free drainage is obstructed. Fig. 3 explains how the tube is prepared. Instead of cutting a hole, a slit is made into the tube which marks out a flap like a Gothic arch. This is done on each side of the tube at opposite points, and the portion of the tube which is destined to remain outside the chest wall is split up, the incisions meeting the Gothic arches at their apices. The preparation of this apparatus only requires four snips with the scissors and can be carried out in a few seconds. When the split portions of the tube are opened out an apparatus is obtained as shown in Fig. 4. After the chest wall has been opened and pus evacuated, a suture should be passed deeply through the superficial tissues on each side of the centre of the incision, leaving room between them for the passage of the tube. These sutures, which should be of stout silkworm-gut, are then tied so as to leave two long equal ends. In Fig. 4 the wound is diagrammatically represented by the dotted line *a*.........*a'* and the stitches, where they pass through the skin and subcutaneous tissue, by the loops *b*.........*b*. The drainage-tube is then put into position and the flaps bent outwards so as to lie in the long axis of the wound where they are secured by tying around them the long end of the two sutures. In order to make this more secure two little cuts should be made on each side to take the stitch as shown at *c* in Fig. 4. The sutures holding the tube in place should be tied in a bow and left long.

The advantages of this apparatus are that (1) it is very firmly fixed to the chest wall and so does not slip in and out, and (2) the small flaps of rubber which have been described as resembling Gothic arches (Fig. 4 *d*) hold the sides of the wound apart and prevent the skin falling over the mouth of the tube. This tube will remain in place as long as the stitches hold—that is to say, usually for a week or ten days, by which time the acute stage of the disease will be passed, and it will be possible to retain a drainage-tube with an ordinary safety-pin, if it has not been possible to remove it altogether.

FIG. 3.

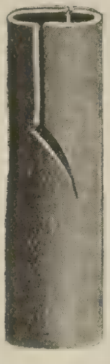
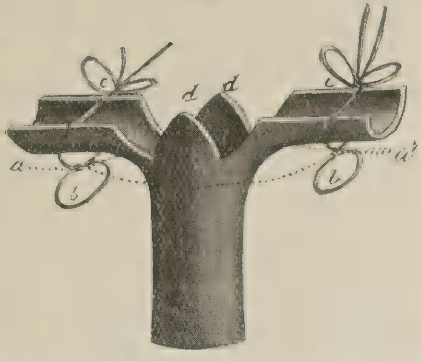


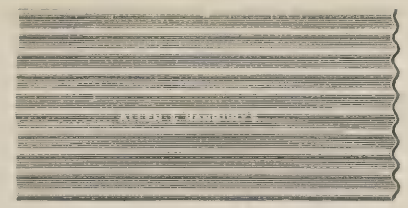
FIG. 4.



To remove the tube in the early stages of the case all that is necessary is to untie the bow securing each half of the split tube, when the tube is quite free and can be drawn out of the chest. The sutures can then be re-tied and the tube is once more firmly fixed.

3. Drainage by means of corrugated rubber sheeting. Although for some cases the drainage-tube is indispensable, there are others in which it has its drawbacks, and I now use extensively the corrugated rubber sheeting, which has been prepared for me by Messrs. Allen and Hanburys. This substance (shown in Fig. 5) is made of fairly stout sheet rubber, and for many cases serves all the purposes of a drainage-tube, while possessing certain advantages.

FIG. 5.



At first I used this material rather tentatively, but I am now using it very largely, especially for temporary drainage after extensive operations, where there is likely to be a good deal of oozing, such as amputation of a limb, excision of the breast or glands in the neck, or removal of large renal tumours.

When a cavity has to be drained through a muscular layer—e.g., in draining an intra-abdominal abscess through a stab wound—I prefer a fairly stout tube, but where there is not much sepsis or where the drainage is a precaution mainly concerning the abdominal wall, a strip of corrugated rubber is more satisfactory.

For draining suppurating tracks, spaces under suppurating flaps—e.g., after an operation for cellulitis—I prefer it to drainage-tubes. It is infinitely more comfortable for the patient than a tube, and can be removed practically painlessly. Owing to its flexibility it is less likely to cause trouble from pressure, but it is sufficiently stiff to allow of its re-insertion when prolonged drainage is necessary.

The material is made in sheets 12 inches long by 6 inches wide, from which strips can be cut of appropriate length and width. A length of an inch or so can be left hanging out of the wound, and when this tends to depress one side of the wound unduly the projecting portion can be split down to the skin level and the two halves turned back in opposite directions.

ON THE USE OF THE ACTUAL CAUTERY IN GASTRIC ULCER

By JAMES KIRKLAND, M.B., C.M. Glasg.,
LATE SURGEON TO HOLBORN MILITARY HOSPITAL.

For five or six years I have used the actual cautery in place of the knife in treating some cases of gastric ulcer. My reason for so doing is threefold. (1) On several occasions on reopening abdomens for recurrent symptoms, after excision of gastric ulcer had been performed some time previously, I have found excessive contraction and cramping of the lesser curvature, which evidently caused acute angulation of the duodenum with the pyloric portion of the stomach, resulting apparently, in some cases, in duodenal ulceration. (2) In excision of the usual wedge-shaped portion of the stomach wall bearing the ulcer there is of necessity a great loss of tissue, which means loss of mobility and function, always a serious matter. (3) Excision alone, without gastro-enterostomy, frequently fails to relieve symptoms; this, in my opinion, may be largely due to the above-mentioned loss of tissue, mobility, and function.

With these considerations in my mind I decided to try some other method of treating gastric ulcer, which would as far as possible eliminate these unsatisfactory sequelæ. I am not an advocate for the excision of every excisable ulcer. With the use of the actual cautery excision is unnecessary, and there is a minimal loss of tissue, mobility, and function. Healing is rapid and satisfactory. We know that heat is one of our very best germicides, and we also know that with an adequate application its effects extend beyond the point of application to a distance of at least 2 cm.

Clinical Basis of Treatment by Cautery.

In cases where patients have survived untreated perforated gastric ulcer a cure of the ulcer and its symptoms follows. It is upon these two factors—viz., heat and perforation—that the efficiency of cautery treatment depends. To treat an ulcer satisfactorily with the cautery the stomach, and particularly the ulcer-bearing portion, should be sufficiently free and movable to allow of safe and adequate exposure. The majority of ulcers which rupture are on the anterior surface towards the lesser curvature, and it is just in this position that the cautery can most advantageously be used. It is also the most frequent site of ulcers which are excised.

There may be some doubt regarding the applicability of this treatment to cases showing signs of malignancy. It is probable, however, that it is even more efficient than the knife. It is an established fact that in both primary and secondary cancer of the stomach the line of demarcation between diseased and healthy tissue is sharply defined. If the diseased portion be excised with the knife with a fair margin, say half an inch, of healthy tissue, it is probable that the whole of the disease has been removed. We know that heat has a very powerful and destructive effect upon cancer cells, and that this destructive effect is exerted for some distance, at least an inch, in every direction from the point of application, assuming such application to be adequate. It follows that the disease may thus be eradicated with more certainty and less loss of tissue and function than is possible with the scalpel, always assuming that in both instances there are no metastases.

There is one important point also noted by American writers, who have just lately been using the cautery extensively, that hæmorrhage has not followed in one case so treated, whereas it is one of our greatest fears in knife excision.

Result in Cases Treated by Cautery.

So far my cautery cases are comparatively few. I have, owing to the war and its vicissitudes, lost the run of several. Two are of too recent a date to make any definite statement regarding them. The following eight I have seen within the last few weeks.

Perforated Ulcers (3).

(1) Male, age 31. Ulcer on anterior superior surface, perforated about 4½ hours; cured.

(2) Male, 35. Ulcer on anterior surface near pylorus, perforated about 3 hours; cured.

(3) Male, 49. Ulcer on anterior surface, perforated about 5 hours; cured; convalescence protracted owing to pleuritic infection. No subdiaphragmatic abscess.

Immediate gastro-enterostomy was done in all three cases.

Unperforated Ulcers (5).

1. Female, 43. Symptoms present about eight years; position of ulcer anterior superior surface, ? malignant; apparently cured.
2. Female, 29. Symptoms about four years; position of ulcer anterior; cured.
3. Male, 35. Symptoms present for an indefinite but considerable period; position of ulcer lesser curvature; cured.
4. Male, 52 (?). Symptoms present for an indefinite time; position of ulcer on lesser curvature, ? malignant; apparently cured.
5. Female, 33. Had "stomach trouble" all her life; two ulcers on and near lesser curvature; cured.

In all cases the ulcer was completely perforated with cautery point and gastro-enterostomy, either immediate or secondary, was done.

When treating an ulcer on the lesser curvature it is well carefully to isolate the crater by reflection of a small flap of gastro-hepatic omentum over the ulcer area. A small but definite point will be seen, which can scarcely be mistaken. This is the apex of the ulcer crater, and the spot through which the cautery point can be thrust. After thorough cauterisation the ulcer is closed by approximation and overstitching, and the reflected flap is replaced and sutured. Whether or not an immediate gastro-enterostomy should be done is for the surgeon to decide. No hard-and-fast rule can be laid down.

Conclusion.

This article has been written with a view to a discussion, so that the treatment by cautery may be established if considered worthy. I claim that by this method it is possible to deal with a larger percentage of ulcers than with the knife, with less risk to life, less loss of tissue, mobility, and function, and with greater certainty of sterilisation of the parts treated.

Wimpole-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF

GUNSHOT WOUND OF THE LARYNX

WITH IMPACTED FOREIGN BODY. OPERATION; RECOVERY.

BY J. WALKER WOOD, L.R.C.P. & S. EDIN., L.R.F.P.S. GLASG.,

LATE CIVIL SURGEON, HAMPSTEAD MILITARY HOSPITAL, AND CAPTAIN, R.A.M.C.

GUNSHOT wounds of the larynx with impacted foreign bodies not immediately fatal are of sufficient interest to justify the recording of the following case recently under my care.

Private L. J. W., 3rd Grenadier Guards, age 35. Wounded on 3/9/18. On admission to Hampstead Military Hospital on 8/9/18 his condition was as follows: small healed wound on right side of neck with some surgical emphysema around the wound, complete loss of voice, and a marked inspiratory and expiratory stridor.

Laryngoscopic examination (see Fig. 1).—Swelling of the left ventricular band, obscuring a view of the left vocal cord: swelling and œdema of left arytenoid and ary-epiglottic fold, partially closing glottic aperture. The right vocal cord was represented by a grey sloughy band, injured by the projectile on its passage across the larynx from right to left. The left side of the larynx was immobile and the movement of the right cord was limited. I decided that the foreign body was somewhere in the region of the left arytenoid. An X ray examination revealed the presence of a metallic foreign body in the region of the left crico-arytenoid articulation.

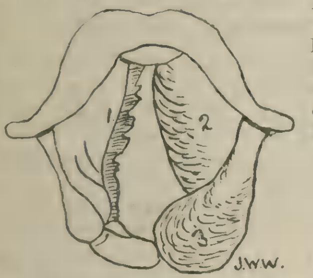


FIG. 1.—1. Laceration, right vocal cord. 2. Swelling and œdema, left ventricular band. 3. Swelling and œdema, left arytenoid and ary-epiglottic fold.

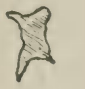


FIG. 2.—Foreign body. Actual size. 8 mm. × 9 mm.

For the following reasons I decided to attempt removal of the fragment: (1) the chance of septic perichondritis and œdema of the glottis occurring; (2) the possibility of dislodgment of the fragment with the grave danger of glottic spasm; (3) interference with the function and mobility of the left vocal cord.

The only operation which would give the necessary access being thyrotomy or laryngo fissure, after a consultation with Captain A. G. Wilkins, R.A.M.C., our anæsthetist, we decided upon rectal ether as the best anæsthetic. The operation was performed on 16 9 18.

Operation.—Thyrotomy incision. Median tracheotomy through isthmus of thyroid. There was considerable emphysema of tissues of neck, which increased the hæmorrhage at this stage of the operation and delayed its initial stages. Thyroid cartilage split from above and, after sponging interior with cocaine, sponges were packed down on convexity of tracheotomy tube and up into pharynx. The foreign body was located in the left crico-arytenoid articulation and removed. (See Fig. 2. actual size.) The muco-perichondrium of the wings of the thyroid cartilage having been drawn together with fine silk the tracheotomy tube was removed, the whole wound being closed except two sutures threaded, but untied at the lower angle of the wound. These were tied 48 hours later. The further progress of the case was uneventful. Following the operation patient developed slight bronchitis for a few days, but the voice was much stronger than before operation. For 48 hours there was slight air leakage through the lower part of the wound, but this rapidly closed; there was no dysphagia.

Present condition, 11/10/18.—The movements of the right vocal cord are normal. There is still some impairment of movement of the left vocal cord. Swelling of the left arytenoid has almost disappeared. The voice is still weak, but very much stronger than immediately after the operation and before it, and is strengthening daily.

Anæsthetic Note (by Captain A. G. WILKINS).

Intra-rectal ether advised in order to avoid (1) interference with surgeon, (2) post-operative bronchitis and sickness, (3) risk of cardiac muscle failure owing to sepsis and a dilated heart (patient had other very septic wounds): these conditions made chloroform inadvisable.

Pot. brom., gr. xx., given at 8 P.M., Sept. 15th. At 9 A.M., Sept. 16th, hypodermic injection: morphine, 1/6 gr., hyoscine, 1/150 gr., atropine, 1/100 gr.; at 9.15 A.M., enema of paraldehyde, ʒi., ether, ℥iv., and olive oil, ℥ii., given as slowly as possible (eight minutes); catheter passed three inches within bowel. Enema retained. At 9.30 A.M. satisfactory anæsthesia, only faint corneal reflex. Colour and respiration satisfactory and patient removed to theatre. At 10.15 A.M., operation commenced, anæsthetic deepened by covering mouth and nose with towel. At 10.30 A.M. when larynx opened pledget of wool soaked in 10 per cent. cocaine and adrenalin swabbed round interior of larynx. Diminution in stridor followed. Pulse good. Breathing quicker. 11 A.M., operation completed. The bowel was then washed out to get rid of remaining ether. At 1.30 P.M. patient opened his eyes but was still dazed. 2 P.M., completely conscious and could understand, and reply to, remarks made to him. There was no sickness.

Remarks.

This is the first occasion that I have done a thyrotomy with rectal ether, and I cannot speak too highly of it as *the* anæsthetic for this operation. Its advantages are: 1. The anæsthetist is out of the way and the surgeon is not hampered with anæsthetic gear about the field of operation. 2. During the operation there is less coughing, which is apt to be troublesome when chloroform vapour is pumped in through the tracheotomy tube. 3. There is no struggling while the patient is coming round; a prolonged period of rest is followed by a good natural sleep without sickness. 4. There is less risk of post-operative pneumonia and bronchitis than when the anæsthetic is administered through the tracheotomy tube.

I desire to record my thanks to Captain Wilkins for the excellent anæsthetic and for his notes thereon; and to Dr. A. R. Roche, of Hampstead, for his assistance with the operation.

A CURIOUS CASE OF

EXTRUSION OF AN INHALED FOREIGN BODY.

BY GEORGE W. JOHNSON, M.A., M.B., B.CH. OXF.

ALTHOUGH it is well recognised that a foreign body after entering the air-passages may occasionally make its exit from an abscess in the chest wall, the occurrence is sufficiently unusual to render the following case of interest, in which the foreign body was a head of grass.

A girl, 2 years of age, was brought to me on July 24th with a fluctuating swelling, of about the size of a tangerine orange, in the right mid-axillary line, the centre of the swelling being over the seventh rib. The swelling was obviously an abscess, and was thought probably to be due to tuberculous disease of a rib. The mother could give no history beyond the fact that the swelling had been noticed for a week, and that the child up to that time had been in her usual health. The child was very difficult to examine, but no sign of any gross lesion in the lungs was detected. Operation was refused. A few days later the abscess burst, discharging a large quantity of pus. The child seemed ill and the temperature remained raised. About August 16th a head of "barley grass" 1¾ inch in length was discharged from the abscess. The mother then stated that about a week before the abscess was first noticed the child had had a choking fit, and that she had taken some similar grass away from her, but had not in any way connected the two events.

After the discharge of the grass the abscess rapidly healed, and at the time of writing (Dec. 17th) the child is in good health.

Gainsborough.

NOTE ON A CASE OF

ENTERIC CYST CAUSING INTUSSUSCEPTION.

By C. W. G. Bryan, *M.C.*, F.R.C.S. Eng.,

SURGICAL REGISTRAR, ST. MARY'S HOSPITAL; SURGEON TO OUT-PATIENTS, PADDINGTON GREEN CHILDREN'S HOSPITAL, AND HAMPSTEAD GENERAL HOSPITAL.

This case is placed on record on account of the rarity of the condition.

L. C., a boy of 6 years, was admitted to the Paddington Green Children's Hospital on May 29th last with a history of abdominal pain of one day's duration, accompanied by frequent vomiting. The bowels had not been opened since the pain commenced. Patient was subject to occasional attacks of constipation with headache and vomiting; otherwise he was always healthy.

Condition on admission.—A well-nourished boy of average development. Generalised abdominal tenderness, no rigidity. Circumscribed swelling palpable in the right hypochondrium. Nothing abnormal on rectal examination. Pulse 124, temperature 99°F., respirations 24. A simple enema was given without result. On the two following days the boy vomited occasionally, and complained of abdominal pain, but his general condition improved. On June 2nd, three days after admission, the bowels opened and frequent offensive stools were passed for two days; no pain or vomiting. On the 4th vomiting and pain recommenced, and lasted until the 7th. Bowels opened on the 5th.

The case came under my care on June 7th. The patient was now having paroxysmal attacks of extreme abdominal pain. Abdomen slightly distended. Visible peristalsis of small intestine. Indefinite tumour of right lumbar region, masked by rigidity. Face pale, anxious, and pinched. Pulse 120, temperature 100·2°, respirations 24. The history and signs then were clearly those of acute intestinal obstruction.

Operation.—Under general anæsthesia the abdomen was opened through the inner part of the right rectus. Small amount of clear fluid in the peritoneum. The ileo-cæcal region was delivered and an intussusception of the last part of the ileum, which had progressed less than one inch, was reduced easily. It was then found that there was a thin-walled cyst, the size of a tangerine orange, in the anti-mesenteric wall of the ileum. The cyst filled the lumen of the gut, two-thirds of it being in the ileum and one-third in the cæcum, the edges of the ileo-cæcal orifice constricting the cyst.

An effort was made to dissect out the cyst, but this could not be done easily, and the attempt was soon given up in view of the collapsed state of the boy and the dragging necessitated by the fixity of the cæcum. After packing off, the cyst was incised and a large amount of opaque fluid and jelly-like mucus was evacuated. The cyst was marsupialised by suture to the lower part of the abdominal wall incision. This caused some kinking of the gut, and the cyst wall appeared to form a considerable mass inside the lumen of the ileum, so a lateral anastomosis was made rapidly between the cæcum and the ileum proximal to the cyst. The abdominal wall was closed in layers with a strip of rubber tissue leading into the cyst.

I decided, working as I was through an incision near the middle line, that it was impossible without severe shock to dissect out the cyst, and for the same reason a primary ileocæcal resection was out of the question. Subacute suppuration of the interior of the cyst occurred, but otherwise recovery was uneventful, and the rest of the wound healed soundly.

Second operation on July 8th.—Spinal anæsthesia by a 5 per cent. aqueous solution of novocain. The old wound scar, with a sinus leading into the shrunken cyst, was excised from the abdominal wall and the general peritoneal cavity packed off. The cæcum and the terminal 6 inches of the ileum were excised, including the cyst and the lateral anastomosis which were involved in adhesions. End-to-end anastomosis of ileum to ascending colon was made, the end of the latter being closed each side to make its lumen correspond with the ileum. Abdominal wall closed in layers; right loin drainage for 48 hours. There was no marked shock and no vomiting. The bowels were opened on July 10th. A stitch abscess of the abdominal wall occurred, and the remains of a catgut stitch were removed on July 29th; recovery was then uneventful, the wound healed soundly, and the patient was discharged to the convalescent home on August 6th.

I saw him in October. He had a sound linear scar, had no symptoms of any sort, and appeared quite healthy.

Remarks.

Examination of the specimen shows the cyst situated in the anti-mesenteric wall of the ileum, close to the ileocæcal valve. In its shrunken condition it is 1 1/10 in. in diameter and projects into the lumen of the gut. Microscopic examination shows a thin layer of circular muscle in the inner wall of the cyst, so that it is intermuscular, as in the case described by Gfeller and mentioned in Keen's "Surgery."[1] Such cysts are considered to arise in persistent relics of the omphalo-mesenteric duct, and may occur between the fibres of the circular muscle of the intestine, as in my case, or may be subserous. Diagnosis has not been made before operation, but should be possible, if this rare condition is borne in mind, in the presence of a tumour with recurring attacks of intestinal obstruction. As a rule such a cyst could be dissected out of the gut wall and the muscle closed by suture. In the case that I record this was inadvisable owing to the inaccessibility of the ileocæcal region and the collapsed condition of the patient. An oblique iliac incision would have given better approach to the region.

I wish to express my thanks to Dr. E. H. Kettle for kindly examining the specimen, and to Miss N. E. Trouton, house surgeon to the hospital, for careful notes.

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[1] Keen's Surgery, vol. iv., p. 679.

Medical Defence Union.—At the meeting of the Executive Committee of the Medical Defence Union held on Dec. 22nd, 1919, the general secretary reported that three members had forwarded donations to the funds of the union as a mark of their appreciation of the services rendered to them by the union in cases in which they had recently had occasion to apply for assistance. One of the members stated that the amount of his donation (which was substantial) was really no measure of his gratitude.

Medical Societies.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this society was held on Dec. 5th, 1919, Dr. DOUGLAS RUSSELL, the Vice-President, being in the chair.

Dr. J. W. MCNEE read a short paper and gave a microscopical demonstration on

The Pathology of Irritant Gas Poisoning.

After pointing out that during the war a much larger number of gases had been employed by the Germans than was generally believed, Dr. McNee described three main forms of gas poisoning. (1) *Chlorine.* This was the original drift gas used by the Germans and was dangerous only where troops were quite unprotected, as in the first attack. It acted as a direct irritant of the pulmonary system, causing intense œdema of the mucosa, and, by the coughing and spluttering set up, a disruptive emphysema, with, in addition, a devitalising effect on the lung tissue. Many of those attacked died in two days, practically drowned by the œdema. Those who recovered suffered from acute bronchitis. (2) *Phosgene.* This was used first as a drift gas and later in shells. It was not irrespirable, and, indeed, might be inhaled in some quantity before its presence was recognised. It was extremely poisonous, causing death in one minute when inhaled in concentrated form. It did not greatly damage the bronchial mucous membrane, but produced an intense œdema of the lung. Two types of cases were observed: (*a*) Men who reacted and displayed a purple lividity; these recovered if well bled so as to relieve engorgement of the right heart. (*b*) Men who were pale and cyanosed; these died practically at once. Among remoter effects were emphysema and a hyaline thrombosis of the capillaries in many parts of the body—e.g., in the walls of the lung alveoli, in the renal glomeruli, and in the brain, where they caused so-called ring hæmorrhages. (3) *Dichlorethylsulphide, or mustard gas.* This was the best gas from the German point of view, as, though not so fatal, it caused more casualties than all the others put together. The actual substance was a greenish-brown fluid, with a boiling point of 217° C., so that when deposited anywhere it was not easily volatilised but remained poisonous for 5, 6, or 7 days. Its primary effects were on the bronchial tree—viz., intense inflammation with necrosis of the mucous membrane and the pouring out of a false membrane like that of diphtheria. This formed a pabulum for micro-organisms which, growing there, set up broncho-pneumonia and abscess of the lung. Among other effects were acute dermatitis and severe conjunctivitis characterised by swelling and œdema, temporary blindness, and in some cases opacities of the cornea which might last for months. A knowledge of these effects of poison gas was of importance to medical men, both in practice and in pensions work, as many of the results were permanent, such as bronchitis (often becoming chronic), asthmatic conditions, fibrosis of the lung (particularly after chlorine or phosgene), and thrombosis or ring hæmorrhages in the brain.

Dr. JAMES CARSLAW and Dr. JOHN M. COWAN made a communication on

The Fatality of Peptic Ulcer and the Importance of Early Diagnosis.

In a series of 112 cases treated in Glasgow Royal Infirmary during the years 1906–16, 14 patients died as the result of the ulceration—a mortality of 12·5 per cent. A similar mortality had been reported by several authors, though figures ranged from 2 per cent. (Leube) to 18 per cent. (Bulstrode). Such figures might not, however, represent the true mortality, as some patients died from causes other than ulcer, and some of the 14 cases referred to might have died after leaving hospital, either from ulcer or from causes indirectly associated with it. Post-mortem evidence showed that ulcer was much more common than was appreciated clinically, and that while clinically the majority of cases occurred in women, post mortem the majority occurred in men. In a contrasted series of 30 cases (soldiers) treated in the 3rd Scottish General Hospital from 1914 to 1919, one patient died during his residence, having been admitted with recurrence of hæmorrhage and too ill for operation. Of four patients submitted to operation three appeared likely to benefit permanently by it, and one unlikely, as widespread adhesions prevented the performance of gastro-enterostomy. Nine patients improved under treatment but relapsed on ordinary diet and had to be invalided out of the service. No fewer than 15 of the patients without any serious gastric symptoms showed occult blood in the stools, some for even long periods. Most of these were relieved from their symptoms after a few days in hospital, and all were dismissed "well." These were nearly all young men and suffered from a type of ulceration not likely to be seen in civil hospitals or to receive serious consideration from private doctors. Such cases probably supplied a number of those tragic incidents of sudden severe hæmorrhage or perforation without warning which everyone at times met with, and warranted a plea for special care in the examination of patients suffering from "dyspepsia," and in particular for the examination of the stools for occult blood.

Mr. HENRY RUTHERFURD exhibited illustrations of Diseases and Injuries of the Neck of the Femur.

RÖNTGEN SOCIETY.—An exhibition of radiographic prints by members of the Röntgen Society will be held at the Royal Photographic Society's House, 35, Russell-square, London, W.C., from Jan. 6th to Feb. 7th. The exhibition will be open daily (admission free) from 11 A.M. to 5 P.M. and on the evenings of Jan. 6th and 13th till 9 P.M. On Jan. 6th at 7 P.M. at the Royal Photographic Society's House a lecture on the X Rays Approached from the Popular Standpoint will be given by Dr. George H. Rodman, F.R.P.S.

SOCIÉTÉ DE THÉRAPEUTIQUE, PARIS.—At a recent meeting of this society Dr. Edmond Lesné and Dr. Léon Binet read a paper on the Resistance to Poisons according to Age, in which they showed by the following experiments that the young animal can resist certain poisons better than an adult one: 1. A new-born cat could resist an injection of 0·62 mg. of cocaine hydrochloride per kilo of body-weight, whereas half of this dose killed an adult cat. 2. A mouse aged 9 days, and weighing 5 g., could resist an injection of 0·5 mg. of cocaine hydrochloride, a dose which proved fatal to a mouse aged 14 days and weighing 10 g. 3. Kittens aged 25 and 32 days could resist injection of 0·06 g. and 0·07 g. of morphia per kilo of body-weight, whereas an adult cat was killed by an injection of 0·05 g. per kilo. The greater resistance of young animals to poison is attributed to the activity of their glands with an antitoxic function, the greater vitality of their tissues, and the integrity of their excretory organs.—In a paper on the Prophylactic Value of Gaseous Disinfectants and Fumigation in Infectious Diseases Dr. Orticoni pointed out that the value of gaseous disinfectants and fumigation was due not only to their bactericidal action, but also to their forming a sort of mask which protected the upper respiratory tract from the penetration of micro-organisms. In certain factories in the South of France, where the workmen were exposed to the fumes of eucalyptus or the products of eucalyptus, the number of attacks of influenza was very small, and no fatal case was observed.—In a paper on the Importance of the Correct Interpretation of Urinalysis in Diabetes, Dr. Guelpa showed that diabetes presented two distinct stages which were of great importance from the point of view of prognosis and treatment. The first was a defensive stage characterised by an excess of urea and uric acid in the urine, and the second, which indicated a breakdown of the system, was characterised by a progressive diminution in the constituents of the urine, especially of the urea and uric acid.—In a paper on the Increase in Female Sterility Since the War owing to the Spread of Graves's Disease Dr. Raoul Blondel stated that the recent increase in the frequency of Graves's disease[1] was one of the principal factors of sterility among French women, one of the effects of hyperthyroidism being atrophy of the uterine muscle. Local examination in such cases showed a small pyriform uterus. Owing to the antagonism between the thyroid and the thymus Dr. Blondel recommended the administration of raw thymus in the form of lamb's sweetbread in addition to local measures such as massage of the uterus and dilatation by tents.

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[1] THE LANCET, 1919, ii., 1102.

Reviews and Notices of Books.

GUNSHOT INJURIES TO THE BLOOD-VESSELS.

Founded on Experience gained in France during the Great War, 1914–1918. By Sir GEORGE MAKINS, G.C.M.G., C.B., President of the Royal College of Surgeons, Senior Consulting Surgeon, B.E.F. With 4 coloured plates and 60 illustrations. Bristol: John Wright and Sons, Ltd. 1919. Pp. 250. 21*s.* net.

THIS volume is a compilation in book form of several papers already written upon the subject, together with a special section furnishing the material from which the views expressed have been deduced. No attempt has been made to deal with the literature. Perhaps this was unnecessary, since the book itself will certainly rank as authoritative.

Wounds of large vascular trunks and the resulting associated lesions must have always special interest for those who deal with war wounds, and it is our knowledge as to immediate results and treatment of these injuries has increased considerably during the last five years. Prior to the war certain special features of gunshot wounds involving blood-vessels were well recognised, such as the tendency to spontaneous cessation of primary hæmorrhage, even with most extensive damage to the vessel; secondary hæmorrhage as a common sequel; and the frequent development of traumatic aneurysm. These characteristics and results have also been found during the present campaign, and though Sir George Makins has found reason slightly to alter the classification of the types of arterio-venous aneurysm, making six in all, they remain substantially the same. Treatment of such injuries, prior to the war, involved usually the ligature of the main artery affected above and below the lesion, with removal of the associated vein only when it prevented efficient treatment of the arterial injury. This line of treatment has been improved upon, and our information increased by a more accurate knowledge of the signs of injuries to arteries. This is particularly so as regards the examination of the heart and of the arteries locally. It has been found that the local systolic arterial bruit is frequently transmitted to the heart, and hence cardiac systolic murmurs of a pronounced character frequently accompany wounds of certain of the blood-vessels. An attempt is made to explain these murmurs which—and it is a point of special importance—may return with the resumption of active life. As regards the local murmurs, the author distinguishes various types, such as the soft "bellows" murmur, a loud "rushing" sound, or a musical whistle. In the presence of the arterio-venous communication either the systolic bruit or the venous roar may be the more prominent element. No characteristic difference in the murmurs has been observed between contused wounds produced by bullets and clean-cut openings produced by sharp shell fragments or bombs. With regard to the effect of these wounds on the general circulation, the ultimate course of arterio-venous injuries tends to support the view that extra strain is thrown upon the heart, so that resultant changes take place in the peripheral circulation.

As regards the actual mode of development of some of the consequences of arterial injuries, the author has demonstrated these by the use of some excellent coloured microphotographs showing sections of arteries in the various degrees of injury, ranging from contusion of the vessel to complete division. The evidence on this point seems to prove that injuries of the nature of contusions and non-perforating lacerations are not infrequently the cause of aneurysms or hæmatomata, which appear at a later stage. Little need be said of the primary treatment of these injuries, which has been substantially the same as in previous wars, and is still complicated by the presence of sepsis. The author insists on the great value of immediate direct transfusion of blood in severe cases of primary hæmorrhage. Secondary hæmorrhage is still a not uncommon sequel of lesions to blood-vessels, and Sir George Makins gives a very concise account of the most recent ruling on the treatment of this complication. War experience has proved that ligature at the bleeding-point is the correct treatment, and proximal ligature of the main trunk supplying the wound area is condemned. There is one exception to this rule: When bleeding is taking place from one of the vessels of the buttock close to the point at which this vessel emerges from the pelvis, ligature of the internal iliac artery or of its posterior division is considered the proper course. Plugging is recommended should ligature or forcipressure prove unsuccessful or impracticable. It may be said that all forms of treatment which have been tried are discussed in this volume, from ligature and removal to plastic operations upon the arteries and veins. When ligature with removal of the artery is adopted it is recommended that the vein be also occluded or, if necessary, partially removed during the operation. A special point is made as regards this coincident ligature of the main vein, the author stating that gangrene is more liable to follow should ligature of the vein be omitted. It is stated that should the artery only be ligatured the limb "bleeds to death" through the patent vein. With regard to Tuffier's tubes, the author states that in severe cases of injury to the popliteal artery gangrene is prevented by their use, and lays it down as a rule that the tubes should be removed at the end of four days. The volume closes with a detailed description of the various methods adopted in cases of injury to individual arteries.

The book is well finished and copiously illustrated by diagrams, X rays, and pictures, and is a worthy synopsis of war-won knowledge, which will be of practical service also in general and industrial practice.

POST-MORTEM MANUAL.

A Handbook of Morbid Anatomy and Post-mortem Technique. By CHARLES R. BOX, M.D., B.S., B.Sc., F.R.C.P., F.R.C.S. Second edition. London: J. and A. Churchill. 1919. Pp. 372. 8*s.* 6*d.*

THE second edition of this excellent manual has been thoroughly revised: short but adequate sections have been added on the investigation of cases of sudden death, and the procedure to be employed when bacteriological examinations are desired, and brief descriptions of the changes occurring in the commoner tropical diseases have been incorporated in the text. We are glad to see that, in spite of these additions, the size of the book has not been appreciably increased. A work of this character cannot enter into competition with the more elaborate text-books of morbid anatomy, and its distinctive features would have been lost by injudicious expansion. In its present form it is one of the best and most useful units in the pathologist's library, and we can strongly recommend it as a reliable guide in all matters of post-mortem technique.

A SURGICAL HANDBOOK.

For the Use of Students, Practitioners, House Surgeons, and Dressers. By FRANCIS M. CAIRD, M.B., F.R.C.S. Edin., and CHARLES W. CATHCART, M.B., F.R.C.S. Eng. and Edin. Eighteenth edition, with appendix. With 208 illustrations. London: Charles Griffin and Co. 1919. Pp. 364. 8*s.* 6*d.*

THIS familiar volume has been brought up to date by the elimination of many old illustrations and their replacement by new ones, and it has grown by 40 pages. To all those officers who have had occasion during the war to augment their military knowledge by resorting to the "Field Service Manual" this surgical handbook will bring back memories. Just as the Field Service Manual treats of anything from the building of an incinerator to the firing of an 18-pounder gun, so this handbook deals with matters as far apart as the direct transfusion of blood and the cooking of food for the sick-room. It is essentially a book of reference, and lays no claim to any higher function. It has filled that place for many a busy doctor in the past, and will assuredly continue to do so in the future. Its illustrations are very numerous and diagrammatic in their simplicity. The index, which is of vital importance in a volume of this type, is adequate. We recommend it as a useful book for those for whom it is intended.

LEÇONS DE PATHOLOGIE DIGESTIVE.

By M. LOEPER. 4me série. With 34 illustrations. Paris: Masson et Cie. 1919. Pp. 298. 11 francs.

THESE 20 essays on a variety of topics connected with gastro-intestinal medicine range irregularly over a wide field—hyperchlorhydria, flatulence in Graves's disease, sarcoma of stomach, duodenal ulcer, the rectal lesions of dysentery. The author thinks he can establish the existence of a suprarenal dyspepsia and constipation, arising from adrenal insufficiency, which are amenable to specific treatment. An interesting chapter describes the cardio-vascular defects of dysenterics, and the last three essays all deal with the rather neglected nervous apparatus in the walls of the stomach and bowels. Functional disease is recognised, and especial importance is attached to the local implication of ganglia and nerves in dysentery and cancer as the cause of pain; there are some striking illustrations of diseased sympathetic ganglia.

THE WELFARE OF THE SCHOOL CHILD.

By JOSEPH CATES, M.D., D.P.H. English Public Health Series, Vol. VI. Edited by Sir MALCOLM MORRIS, K.C.V.O. London: Cassell and Co. 1919. Pp. 154. 5*s*.

DR. Cates writes in a clear and straightforward style which is well adapted for the wide public to whom this series is addressed. The first part of the book deals with the findings of medical inspection of school children, and is calculated to produce the requisite amount of horripilation in the reader. The final chapters deal with the school building and the school annexe. The latter, which is the offspring of recent solicitude for the welfare of the school child, includes the canteen, the gymnasium, the school baths, the play centre, and the treatment centre. The author writes from the point of view of the medical officer of health of a large industrial town, who is also the school medical officer. The importance of the environment of the school child in the production of ill-health is throughout insisted upon. Dr. Cates writes strongly upon the iniquities of the insanitary privy-midden and the pail-closet. It is to be doubted, however, if these relics of the Middle Ages have in fact that influence in producing malnutrition in children which he ascribes to them.

In contradistinction to the general run of similar books little space is devoted to infectious diseases in relation to schools and scholars. These diseases are treated only in a general way, but the paragraphs dealing with them reveal a breadth of view and a progressive spirit which it is not usual to find in the sanitarian's attitude to this question. Instead of the ostrich-like policy of wholesale exclusion from school, Dr. Cates advocates the attendance even of contacts from houses in which infectious disease exists; and he describes a system of regular supervision and visiting by school nurses which has proved more successful in practice than the older methods of school closure and exclusion.

Dr. Cates writes only of what he knows and therefore with authority. The book, however, has in consequence the defects of its qualities. Many of the public for whom it is intended will search it in vain for any description of, or even allusion to, the various forms of voluntary effort which have been enlisted throughout many progressive areas in schemes for promoting the welfare of the school child. The subject of physical exercises is not adequately dealt with and no guidance is given in regard to such immediate extensions of activity as, for instance, the development of nursery schools. In spite of these serious omissions the work is an admirable exposition of the conditions which exist and of the provision which has been made for the welfare of the school child in a typical manufacturing district; and no doubt if the author had not limited himself to the things of his own experience the book would have lost much of that directness and authenticity which are its most important characteristics.

A DICTIONARY OF TREATMENT.

By Sir WILLIAM WHITLA, M.A., M.D., LL.D., M.P., late Professor of Materia Medica and Therapeutics in Queen's University, Belfast. Sixth edition. London: Baillière, Tindall, and Cox. 1920. Pp. 1083. 25*s*.

THIS work was first published in 1891, and the fact that it has reached its sixth edition is sufficient proof that the efforts of the author in making the book a useful work of reference have met with the success they deserve. The dictionary includes medical and surgical therapeutics, and the present volume has been, as far as possible, brought up to date. The more common affections, which form the great majority of cases in ordinary practice, receive due attention, whilst the rarer maladies, such as sprue and anthrax, are likewise discussed at suitable length.

The amount of space devoted to the treatment of the various diseases is by no means curtailed; for instance, no less than ten pages are occupied with the discussion on the therapeutics of eczema. Functional affections of the heart occupy nearly four pages, whilst the information on valvular diseases of the heart takes up 14 pages, and sound and practical suggestions are made as to the drug treatment of these affections and the general mode of life to be adopted by the patients. The book is a reliable and complete work of reference within the limitations which the author has resolved to observe. It is a dictionary of treatment and not a system of the art and science of medicine.

ROENTGEN INTERPRETATION.

A Manual for Students and Practitioners. By GEORGE W. HOLMES, M.D., Roentgenologist to the Massachusetts General Hospital; and HOWARD E. RUGGLES, M.D., Roentgenologist to the University of California Hospital. With 181 figures. London: Henry Kimpton. 1919. Pp. 211. 15*s*.

THIS volume is a valuable contribution to radiology inasmuch as, unlike many works on the subject, it deals adequately with the most important aspect of radio-diagnosis. The aim of the authors is to provide a general guide to the accurate interpretation of the evidence afforded by X ray methods. They are careful to impress the fact that no book can impart the necessary skill, and that the illustrations given are but types of lesions, or momentary phases of constantly changing and extremely variable processes. Given access to the work of a busy X ray department this book will be of great value to the radiological student, but, of course, a medical training is a necessary prelude to this study. The authors rightly say that: "In attempting to study gross changes by means of shadows a knowledge of pathology is as essential to the roentgenologist as that of anatomy is to the surgeon."

The book is arranged as a series of chapters, each dealing with a special subject, and concludes with a bibliography which, while not complete, is sufficient for the purpose. Some chapters seem rather compressed, but if every section were treated at length the volume would cease to be the convenient, almost pocket companion it now is. Every radiological student should have this book constantly at hand as he is sure to find in it many a useful hint for the elucidation of obscure X ray findings.

JOURNALS.

Journal of Pathology and Bacteriology, Vol. XXIII., No. 1, pp. 1–128, December, 1919.—Experiments on the Action of Unsaturated Fatty Acids and Lipoids on Amylolytic and Hæmolytic Phenomena, by P. Stocks.—A Modified Wassermann Test, by C. Y. Wang. The author mixes loopfuls of unheated serum antigen and sensitised ox corpuscles on a slide and observes the result microscopically; enough blood can be obtained from a fine capillary tubeful. He meets the many objections which will naturally be raised by showing that in a long series of cases tested in parallel with the original Wassermann method his process affords a rather more delicate test. Heating the suspected serum is harmful to the specific reacting substance as well as to complement.—The Biochemical Comparison of *Bacillus sporogenes* and the Reading Bacillus by Quantitative Methods, by J. E. G. Harris.—The Paths of Spread of Bacterial Exotoxins, with Special Reference to Tetanus Toxin, by F. H. Teale and D. Embleton. Tetanus toxin passes from the site of injection to the central nervous system more by way of the perineural lymphatics than along the axis-cylinders; although it is quickly passed from systemic capillaries to connective-tissue spaces it will not pass into the central nervous system from the cerebral capillaries, nor into the cerebro-spinal fluid through the choroid plexus. Tetanus antitoxin cannot enter the central nervous system by way of the blood-vessels, axis-cylinders, or perineural lymphatics, nor from the cerebro-spinal fluid.—Macroscopic Appearances of War-injured Nerves, by S. M. Cone.—The Protozoal Parasites of the Rat, with Special Reference to *Spirochæta icterohæmorrhagiæ*, by A. G. R. Foulerton. A full account of the occurrence of the parasite of spirochætal jaundice (4 times in 101) and *Trypanosoma lewisi* (45 in 123) in London rats, with a useful summary of the present state of knowledge.—A Squamous Epithelioma of the Frontal and Maxillary Sinuses in a Mare, by J. F. D. Tutt.—Hydrogen-Ion Concentration and Antiseptic Potency, with Special Reference to Acridine Compounds, by C. H. Browning, R. Gulbransen, and E. L. Kennaway. Acridine compounds are specially effective in serum, because they do not combine with proteids, and work best at the reaction of body fluids.—Ectopia Cloacæ, by C. Walker.—Obituary of S. G. Scott, the histologist, with a portrait familiar to those who knew him in his laboratory at Oxford.—Spontaneous Nephritis in Rabbits, by J. P. McGowan.—Ganglioneuroma of the Adrenal and Neuroblastoma of the Sympathetic, by M. J. Stewart.—Subacute Liver Atrophy in a Case of Syphilis Treated with Galyl, by M. J. Stewart, C. W. Vining, and J. P. Bibby.—A Starch-splitting Streptothrix found in the Stools in Diabetes, by W. Ford Robertson.—Method of Staining Organisms in Tissues, by G. H. Wilson.—Antiseptic Properties of Acridine and Phenazine Compounds, by C. H. Browning, J. B. Cohen, and R. Gulbransen.—The Small Production of Agglutinins by Mice, by A. E. Boycott.—Effect of X Rays on Susceptibility to Bacterial Infection, by C. H. Browning, R. Gulbransen, and S. Russ. No effect with pneumococci and tubercle bacilli.

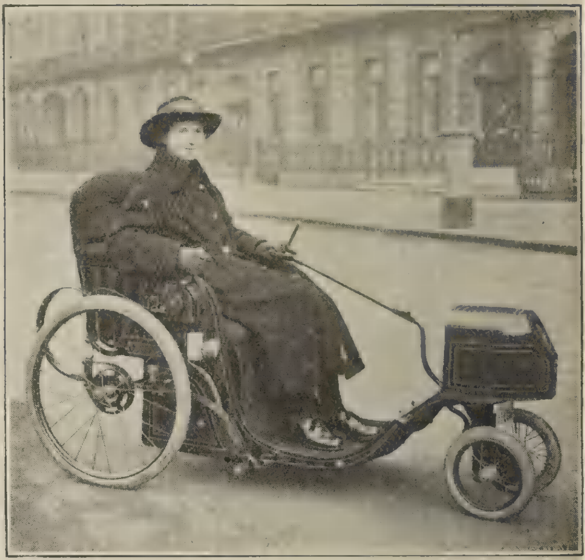
BOOKS OF REFERENCE.

Burdett's Hospitals and Charities, 1919: The Year Book of Philanthropy and Hospital Annual (London: The Scientific Press, Ltd. Pp. 1087. 12*s*. 6*d*. net), which contains a review of everything that concerns hospital administration, medical schools, asylums, convalescent institutions, and nursing establishments, is now so well known and established as a reliable book of reference that it scarcely requires from us any detailed description or commendation. At a time when hospitals are so sorely tried to make ends meet that there is grave danger of State intervention and the abolition of the voluntary system which has been the boast and pride of this country for the past 200 years, Burdett is particularly valuable as showing not only the needs of our healing institutions, but also the enormous volume of succour to the sick poor which they give. This valuable book also contains much useful information in regard to American and colonial hospitals and allied institutions, and we know of no other work of similar scope which is so convenient for reference.—*The Annual Charities Register and Digest* (London: Longmans, Green, and Co. Pp. 584. 5*s*. net), which is now in its twenty-eighth edition, is another well-known work of reference, and is an indispensable handbook to everyone who is interested in the charities in, or available for, the metropolis. Besides containing a review of the year of the financial position of metropolitan charities, detailed information is given of the individual institutions grouped under headings such as blind, deaf and dumb, epileptics, incurables, and so forth; while, under the heading of miscellaneous, societies dealing with social and physical improvement, employment, emigration, and protection of life, and of the helpless are dealt with. Reference is facilitated by a very full index.

New Inventions.

AN ELECTRICALLY DRIVEN BATH CHAIR.

OUR Motor Correspondent writes: An invalid's carriage, comfortable and luxuriously C-spring suspended, which is sure to be appreciated by invalids owing to the fact that it is driven by the occupant and thereby does away with the necessity of an attendant, has been produced by Messrs. J. and A. Carter, of Great Portland-street, London. Twenty-four 4 volt accumulators, each of 36 ampères capacity, placed under the seat, drive a ¼ h.p. electric motor housed under a bonnet over the front axle. The transmission from the motor to the front axle is by helical gearing, well boxed in, with a conveniently placed plug for oiling. The control is by a lever on the driver's right. When this is pulled back it applies a band brake to the right rear wheel. Pushing the lever forward and depressing a button releases the brake and switches on the power, which is full on with the handle fully advanced. By this means any speed from a mere crawl up to five miles an hour can be obtained. Sufficient power, which is ample to ascend any incline, is carried for a run of about 20 miles. An accessible switch permits reversing at any speed. There is an additional brake, controlled by a lever on the left hand and acting on the left rear wheel. The front wheels have 12 × 1½ Dunlop pneumatic tyres, the rear 26 × 2 Dunlop pneumatic grooved motor-cycle tyres. The steering is of the ordinary bath-chair type, and seems particularly easy. On the floor facing the driver is a voltmeter and a plug for charging the batteries; a mileage recorder is also attached. The weight empty is 2¾ cwt. The machine is simplicity itself, and any patient with the use of his arms can manipulate it, and take a run at any speed up to five miles an hour.



The simplicity and ease of control greatly appealed to the writer, as, after a moment's explanation, he was able to manipulate the chair in and out among crowds of furniture in the showrooms, advancing and reversing at will. For ascertaining that there is sufficient power in the accumulators for a trip, it would be as well if an amptmeter as well as a voltmeter was fitted. A voltmeter may register almost the full voltage until the accumulators are nearly run out. Legally, the chair must be registered as a motor-car, carry number plates, and pay an annual motor-carriage licence. The driver, too, must have a driver's licence. It seems rather an anomaly that an invalid carriage, with a speed-limit of five miles an hour, should be thus penalised. The matter is, I understand, being represented to a traffic committee, now sitting, with a view to obtaining exemption of self-propelled bath chairs from regulations which it seems absurd to apply to such vehicles.

THE LANCET.

LONDON: SATURDAY, JANUARY 3, 1920.

The Coöperation of the Future.

THE opening of a New Year is a convenient date in which to register the experiences of the past and to determine upon the activities of the future, but such revisions and provisions will not have their full value, and may, indeed, betray us into error, if there is any tendency to regard the separate years as isolated periods rather than as arbitrary divisions of continuous time. No one really thinks that the embarrassments of 1919 have disappeared with the dawn of 1920, or that we can start with a slate free from the errors whose sequence remains, because we have determined that no such errors shall occur again. What we can decide at any moment is that the legacy charges of the past shall be paid in full with as much promptitude as possible, so that the assets which remain shall fructify in due season, and so that our future enterprises shall have free play and good chances of successful issue. And New Year's Day is a good time to register and act upon that decision, because it is a date upon which other people are likely to take the same course. The very general manner in which civilised persons regard the beginning of the year as an opportunity for stock-taking leads to coöperative effort making for human progress. The moral for the medical profession is exposed.

The anxious phase through which the calling of medicine is now passing makes it particularly necessary that those who follow it should face the problems of their professional life in a coöperative spirit, recognising that certain of the changes that will surely be brought about in our careers are quite commendable, and that others, if repugnant on the surface, may none the less be socially right in their working; and recognising, also, that some of the innovations may be found not to have the fortunate tendency attributed to them by their sponsors, when common steps to remedy the ill should be arranged. We have to regard the legislation for National Insurance against sickness, and its results, as a phase in a consecutive story—the story of the development of medical practice; and we have to think clearly, as a body of men who have been trained so to think, which of the unfortunate conditions of medical practice are being removed by new legislation and which are being confirmed into our daily work. We must consider how to mitigate these latter, how to assist the promises of scientific progress to develop under impending regulations, and how to ensure that faults in these regulations will be removed. Panel practice is an expression of the desire of the people to enjoy the ministrations of medicine in a full measure; unless our rulers had known that popular support was behind the national insurance legislation no such enactments would have ensued. But all medical practice has this same origin—it all springs from the natural wish of man to be free from disease—so that no separation between panel practice and other medical practice is possible in the logical mind. There is one common policy before the medical profession now as ever, and that is to ensure that the conditions of medical practice should be such that the nation may obtain from our efforts its full scientific value. This can only happen if the whole of our body is united not only in the altruistic desire to do good, and not only in the reasonable determination to obtain adequate remuneration for services rendered to the public, but also in the furtherance of detailed plans of coöperative practice whereby the care of the sick becomes a homogeneous whole.

It is fine testimony to the influential evolution of medicine that day by day a medical side to common affairs makes its appearance and draws from intelligent people acknowledgment of the spread of our science. This diffused dependence upon medicine is as good for our calling as it is for the world at large, for medicine is essentially one of the branches of human learning that requires the coöperation of humanity if it is to exercise its beneficent force. To-day medicine bids fair to take the place which classical learning occupied in the sixteenth century among the humanists who distributed the stores of classical literature placed at the disposal of the world by the revival of learning, seeing in them the food and instruction necessary for a long journey forward in civilisation. We medical men have to regard ourselves as the almoners of vast scientific blessings. It is our duty to join our forces so that for all classes of the population the best help we can provide is available; and whereas we know our weakness and our strength more intimately than any Government department can know them, it is essential that the methods under which those forces are marshalled should be those which experience of practice tells us will lead to the best service.

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First Principles in Thoracic Surgery.

UP to the end of the year 1916 the expectant method of treating wounds which opened the pleural cavity was in vogue, and this resulted, speaking generally, in a number of deaths, a proportion of recoveries after prolonged convalescence, and a considerable residue of cases which made a good recovery and were returned to duty. The serious attempt to apply the general principles of surgery to gunshot wounds of the chest soon showed that it was both practicable and safe to operate in the early stages by opening the thorax widely, removing the larger fragments of metal along with carried-in bone and clothing, and repairing the injured lung, the chest being then closed again. Most innovations are exploited beyond their merits, and there were at first some who claimed that every chest wound should be submitted to operation. The less severe injuries, however—typically those caused by the passage through the chest of a rifle bullet with small entry and exit wounds, without much splintering of ribs and without large hæmothorax—healed with little trouble, while a survey of after-histories showed a large proportion of quick return to duty. On the other hand, it was manifestly necessary to save life by operating on all patients with open sucking wounds of the chest, with extensive ragged wounds of the parietes, or with retention of large foreign bodies which had presumably carried in infected clothing. Between these two extremes lay a large number of cases in which the surgeons might well be in doubt whether to operate or not. Only an elaborate analysis of after-histories could answer this important question, and this was impossible while fighting was going on. It is only now that the appearance of a collection of statistical reports[1] by the Medical Research Committee affords material for at least a tentative answer.

In this valuable brochure of 40 pages are included some notes on penetrating wounds of the chest, by Major W. L. MANN, from No. 3 Canadian C.C.S.; statistics dealing with the operative treatment of chest wounds during the autumn of 1917, by Colonel A. B. SOLTAU and Colonel T. R. ELLIOTT, collected from about 40 C.C.S.'s in the Ypres and Lens salients; and statistics from base hospitals during autumn of 1918, showing after-histories of cases of penetrating gun-shot wounds of the chest transferred from C.C.S.'s, by Colonel W. PASTEUR and Colonel ELLIOTT. Along with these reports should be read an earlier analysis, in the same series, of 600 cases of gunshot wound of the chest, by Dr. J. M. FORTESCUE BRICKDALE, as well as the paper by Dr. J. B. MCDOUGALL, which appeared in our issue of Nov. 29th. The careful reader will then have before him materials for estimating the value of surgical interference in those cases of injury of the chest on which surgical opinion has not yet spoken. Major MANN was recognised as a surgeon of sound judgment who possessed great technical skill. He saw and treated himself at Remy Siding, near Poperinghe, between June, 1916, and November, 1917, the 600 cases which he has followed up. He advises operation in all cases of open thorax, in all cases of infected hæmothorax, and in those instances where the parietal wounds are large and ragged. Operation is not advised when the hæmothorax is unaccompanied by symptoms of infection, distress, or extensive damage to the parietes. His report, in fact, comes down to a recommendation for confining surgical interference to life-saving operations and for treating the rest by expectant methods. The analyses of SOLTAU, PASTEUR, and ELLIOTT alike aim at showing the average results of thoracic surgery as practised by operating surgeons at clearing stations, and the final conclusion runs:—

> "The general incidence of empyemata was not markedly reduced by early operations, and the great value of the new surgical procedure was seen to lie chiefly in its power to save from death men with wounds of such severity that, apart from early operation, they would unquestionably have died outright or succumbed later to an overwhelming infection of the pleura."

The opening-up of the chest has on this showing saved life only in desperate cases, and it has not lessened sepsis in any material degree.

Some courage is required to question the deductions drawn from such figures with every care by able men, but it is nevertheless fair to ask whether figures obtained under very trying conditions convey the correct impression—whether, in fact, they can safely be regarded as standardising the procedure in gunshot wounds of the chest. There is another point. The new thoracic work was only begun at the end of 1916, and was still in its infancy in 1917, when surgeons were groping for the right way to operate and the right cases to choose for operation. In 1918 the fixed front became mobile, and all the conditions of operation were profoundly altered. These are precisely the circumstances under which the personal impression of a particular surgeon may be as just as the highest common factor of a very variable group of workers. And undoubtedly the impression that has remained with many a surgeon personally engaged in looking after chest wounds, is that lives were saved and sepsis was prevented by effective operation upon the right cases at an early stage. This is as much as to say that the principles of surgery, established for wounds of other parts, are applicable to wounds of the chest—a sound principle, and one which will hardly lead the surgeon into error or his patient into danger.

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The Medical Report as Popular Educator.

THE preface to the annual report for 1918 of Dr. MEREDITH YOUNG, medical officer of health to the county of Chester, contains a confession of faith as to the function of the medical officer's annual report which is of considerable interest. It is this:—

> ......"Few if any business concerns can be carried on without an annual stock-taking. The medical officer's annual report is his annual report on the stock-taking in life and death, health and disease. From figures which one understands oneself, and which one endeavours to make comprehensible and of interest to others, the medical officer of health can see the leakages of life and health and draw conclusions as to their causation and the effect of measures intended to prevent them, so that more effective propaganda may be devised and worthless methods discarded."

Dr. YOUNG has given a useful reminder of the part which such periodical reports can be made to play in the information and education of the general public, and his remarks might well be adopted as a motto by medical officers of health in preparing their annual reports. The actual duty of the medical officer of health is not to advise the public in his report, but he will be serving his authority usefully if he does so, or supplies his authority with the proper grounds for the sanitary instruction of the public.

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[1] Statistical Reports, No. 5, on Penetrating Wounds of the Chest. H.M. Stationery Office. Price 1s. 6*d*.

While full recognition must be given to the admirable qualities of many reports issued from time to time by busy medical officers of health, it cannot be denied that there is also a number of somewhat indifferent and uninspiring reports which fall short of any standard that would have educational influence. What causes underlie the comparative ineffectiveness of this latter group? First, there are defects in exposition. Of late it has been realised, to a constantly increasing extent, that to reach the average man the principles of preventive medicine must be popularised; thus national healthiness may be reached by educating the layman in the avoidance of the beginnings of disease. The authority of the medical officer of health is directly a lay one, though he is also an officer of the State, and the instruction of laymen by medical men implies the depolarisation—to use WENDELL HOLMES'S analogy—of medical technicalities and their translation into the vulgar tongue. This is a difficult art to which it is not the lot of all medical men to attain. Sir GEORGE NEWMAN'S recent report to the Minister of Health, giving an outline of the practice of preventive medicine, may be quoted in happy illustration of the art at its best, and excellent examples could be adduced among the annual reports of medical officers of health. But many medical men find it very hard to give an exact message in the vulgar tongue, and the experience of medical witnesses in a court of law proves that sometimes this is quite impossible.

Lack of teaching instinct is not the only cause of failure, which in some cases seems to depend on misconception of the purpose of the annual report. Such reports are not merely a record of the past: they should also be a sign-post to the future. Among other reasons for an uninspired annual statement are: Lack of willingness to arouse opposition by a ventilation of defects when the medical officer concerned has no security of tenure of his post, and is perhaps only a part-time officer; excess of caution as to giving hostages to fortune by a statement of views; the dead-weight of a parsimonious council which will in some cases not even sanction the cost of printing the report. But the heart of the difficulty is in most cases lack of time. The statistical material must in any large area be prepared by clerks; is the commentary by the medical officer of health to be a mere connecting thread, or is it to be a reasoned deduction from facts? The former course results in a form of report stereotyped from year to year and tending to degenerate into a dreary sequence of tables. Such statistical statements obviously are essential to any business-like presentation of the facts, but it is not every medical officer of health who realises the vital importance of conveying the lesson of his figures to the reader without compelling the latter to seek out the meaning for himself. Were it an instruction to medical officers of health that all tabular matter should be replaced by a written statement of its purport, the loss might be counterbalanced by an increased appreciation of the underlying meaning, but this would be an undesirable and impossible proceeding. The many medical officers who now present in the body of their reports a popular statement of public health progress, relegating the statistical matter to appendices, have probably hit upon the best course. The difficulties in the production of the perfect report are varied and obvious; we register appreciation of those many reports in which these difficulties have been triumphantly mastered, rather than grumble at those which do not come up to the ideal. But every dull and incomprehensible annual report from a medical officer of health represents a missed opportunity of educating his authority and his community.

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William Osler.

WILLIAM OSLER was the greatest personality in the medical world at the time of his death. By his scientific attainments he had earned a place in the first rank; and that place he adorned by a keen cosmopolitan knowledge of men and things, and by large literary activities which ranged through clinical medicine and every side of scientific education, and included philosophical and biographical essays and humorous disquisitions. Wherever his pen travelled the subject was illuminated by clear thought, accurate knowledge of literary predecessors, classical accomplishment, playful wit, and the most deep and honest charity. He was a great physician, a great professor, and a great author. Apart from the tragic stroke dealt him by the war, when he lost his only son, his life was the happiest one conceivable, for he reached his position on no grounds whatever save the merits of accomplishment and the force and charm of goodness. His swift successes brought no envy in their track, and his abounding popularity was the outcome of an unfailing and instinctive desire to help all who came to him in the most practical way, without either flattering his beneficiary or laying him under a burdensome sense of obligation. He was an embodiment of the fact that the science of medicine should know no racial tie, but should place itself at the disposal of the world. As first President of the Fellowship of Medicine he was in his element in strengthening the bond between Anglo-Saxon doctors; and when the doctors of Vienna sought our help it was to OSLER that they went first, knowing that he would regard them as members of one great calling. He had the genius of friendship, private and public.

Annotations.

"Ne quid nimis."

A MEDICAL PEER

To Sir Bertrand Dawson there accrues the high distinction of being the first medical man to whom a peerage has been given in acknowledgment purely of professional position. Lister was no longer a practising surgeon when he was summoned to the House of Lords in recognition of the world-wide achievements with which his name is associated; Sir Bertrand Dawson has been awarded a peerage on professional grounds, and in response to the growing feeling that in our Second Chamber there should be representation of all the great sections of the community. As physician to the London Hospital and as dean of the Medical Faculty of the University of London he enters the House of Lords with the highest professional status; he is admittedly in the front rank of our clinicians, he is an expert on medical education, and his public utterances dealing with professional organisation reveal him as one with sound ideals and clear views. He is, moreover, Physician in Ordinary to the King and chairman of the Medical Consultative Council, which forms the link between the medical profession and the Ministry of Health. During the war he served as consulting physician to the Forces. A recognition of the calling of medicine is implied in the great honour which has been done Sir Bertrand Dawson, and upon which we congratulate him heartily.

GERMAN MEDICAL ACHIEVEMENT DURING THE WAR.

IN his introduction[1] to the official German Medical History of the War, which he is editing, Otto von Schjerning gives an enlightening sketch of the work of the Feldsanitätswesen, of which he was chief during the last five years. He begins by remarking on the unwillingness of his countrymen to draw the painful lessons of Germany's fall, and reminding them that the need to climb out of their high buskins has enabled them to gain a correct standpoint for German medicine. The bitter want and deprivation have led to a proper recognition of scientific discovery and to new and unsuspected lines of progress. War has been once more, in the words of Heraclitus, "the father of all things," and it is in chemistry and medicine that pre-eminent progress has been achieved. The actual losses of medical personnel on the German side were comparable to our own. 1325 medical men on active service, or 5·4 per cent. of the total number, are known to have been killed or to have died as a result of their work, 2149 others were wounded non-fatally, and 4673 were "missing." Schjerning goes on to give from year to year the special achievements of medicine in the field, the first and most essential being the 238 hospital trains which plied continuously from front line to base hospital and back again. At first tetanus played great havoc in Northern France, typhoid and dysentery in Champagne and the neighbourhood of Metz; each of these scourges soon yielding to appropriate vaccine or serum treatment. On his recommendation Behring and Röntgen early in the war received the Iron Cross in recognition of discoveries which brought untold saving of life and limb. During the long-drawn-out struggle around Verdun gas œdema became urgent, but it was only in the very last months of the war that an effective serum was obtained to stave off its awful consequences. The interesting fact is noted that no dysentery or typhoid convalescents were ever allowed to return home to spread infection; they were all collected in a great convalescent camp at Spa in Belgium until able to return to the line. Five-days fever, scurvy, hunger œdema, malaria, dengue, spirochætal jaundice are severally noted in the account, leading up to the enormous epidemic of Spanish influenza in 1918. Brussels, Warsaw, and Bucharest are given as the chief centres of venereal infection, but Schjerning records as a great sanitary achievement that these diseases were kept in check throughout the whole campaign, and were, in fact, far less prevalent among the troops than at home. In the last months of war various skin diseases became increasingly prevalent, especially sycosis, and parasitic worms abounded.

Speaking of the work of his own staff, Schjerning praises the great skill shown by those charged with setting up and equipping temporary hospitals. More than 24,000 doctors were, on the average, in the service of the army, 3000 were attached to the Red Cross, and associated with them were 600 dentists and 1800 pharmacists. As the available number of fully qualified men was reduced, medical students were summoned to take their places. Schjerning speaks with enthusiasm of the enhanced knowledge and ability gained on military service, with its enlargement of the field of vision and development of character and courage. A great feature of the medical side of the campaign were the conferences on scientific subjects held in the several army areas. Meetings of specialists from all the fronts discussed such matters as combating typhoid, dysentery, cholera, and tetanus. The surgical congresses at Brussels in 1915 and 1918, and Berlin in 1916, and the medical congress at Warsaw in 1916, added much to the store of medical knowledge. These efforts were rewarded inasmuch as the results of medical care improved from year to year, for in the first year of war 88·7 per cent. of wounded and disabled men returned to the front, in the three following years 91·3, 91·8, and 92·8 respectively. Apart from wounds, tonsillitis and gastric and intestinal disturbances played a leading rôle. Tuberculosis showed in the German army not the slightest indication of increase. Under particular medical advances Schjerning notes the abortive treatment of gonorrhœa with silver preparations, the development of the so-called provocative method in latent malaria, and the employment of cystin preparations in dealing with typhoid carriers. In typhoid disease the introduction of a solid and substantial diet from the second week of illness was attended with marked acceleration in convalescence. Alcoholic mental disease diminished greatly during the war. The surgical lessons of the war have been perpetuated for future generations of medical students in the war museums at the Kaiser Wilhelm's Academies in Berlin, Munich, and Vienna, some 7000 preparations having been made. The opportunity afforded by the battle-field to get a new insight into constitutional pathology was not lost sight of, and the normal structure and function of organs was studied on the still warm body. In this way the exact form of the systolic and diastolic heart, of the contracted and relaxed stomach, of the rugæ of the gastric membrane, of peristalsis in the bowel, and of the relations of rectum to prostate and vesicles was determined. A statistical appendix attached to the paper resumes the volume of the work carried out. It is here recorded that more than 10 million doses of tetanus serum and more than 12½ million doses of small-pox vaccine were given, while anti-typhoid vaccine ran up to a total amount of 103,000 litres and that of cholera serum to 80,000.

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[1] Die Tätigkeit und die Erfolge der deutschen Feldärzte im Weltkriege, zugleich Einleitung zu dem "Handbuch der ärztlichen Erfahrungen im Weltkriege." Leipzig: J. A. Barth, 1920. Price M. 1.80.

It cannot fail to strike the careful reader of Otto von Schjerning's introductory chapter that the record of medical achievement and of medical sacrifice on the other side of No Man's Land was not widely different from the record with which Sir John Goodwin has familiarised us.

THE TREATMENT OF WAR NEUROSIS.

THE advance which has been made, as a result of experience gained during the war, in the method of treatment for cases of neurasthenia, shell shock, and functional nervous disorders in general has been considerable, for no other form of medical disability has received greater or more intelligent attention. The medical men who have been brought directly into contact with cases of this nature, and whose duty it has been during the war to undertake the care of this class of patient, have learned to appreciate the dangers which attend delay in treatment, while experience has shown that special methods will very generally ensure satisfactory results. The Ministry of Pensions has established neurological hospitals for in-patients and psychotherapy clinics for out-patients where these tried forms of treatment can be applied, but the Ministry feels that full use is not being made of these institutions. Many general practitioners, it is suggested, have cases of war neurosis among their patients which are not benefiting to the full by modern developments in therapeutics. Consequently the Medical Service Department of the Ministry is inviting general practitioners who have cases of war neurosis under their charge to communicate with the Service at 14, Great Smith-street, Westminster, S.W. 1, with regard to any case, even if the condition is not severe, which is not progressing rapidly towards recovery. In a severe case this should always be done, and, where necessary, the Ministry will certainly arrange for treatment at one of its special institutions.

THE RIGHT LEVEL FOR AMPUTATION IN ARTERIO-SCLEROTIC GANGRENE.

Dr. D. N. Eisendrath and Dr. R. B. Bettman have pointed out[1] the error of the majority of surgeons in being guided as to level to amputate by the area of arterio-sclerotic gangrene. Not infrequently the amputation is followed by extensive sloughing of the flaps, and either death from sepsis follows or the opposite limb becomes affected by extension of the thrombosis from the femoral to the iliac artery, and then to the opposite iliac. Dr. Eisendrath and Dr. Bettman felt that the ideal method of choosing the level to amputate would be to expose the femoral artery at the middle of the thigh, and to follow it upwards or downwards until the level was reached at which thrombotic occlusion ceased and distinct pulsation could be observed. This method gave gratifying results in the following case. A man, aged 56 years, was admitted to the Michael Reese Hospital, Chicago, with marked evidence of arterio-sclerosis and gangrene involving the entire dorsum of the foot. Pulsation was absent as high as the upper femoral region. Amputation through the lower third of the thigh by the Gritti-Stokes method was decided on. On exposing the femoral vessels at the middle of the thigh for preliminary ligation they were greatly surprised to find the femoral artery completely occluded by thrombosis. Following the vessel upwards they could not find pulsation until close to Poupart's ligament. Here the artery was ligated just above the occlusion—that is, through the lowermost pulsating portion. Amputation was performed at this level, and the patient, who had been extremely septic, made an uneventful recovery. However, in spite of the high level of amputation, there was moderate gangrene of the skin flaps. Dissection of the arteries of the limb revealed many calcareous areas in the femoral and a firm clot occluding it up to a point close to the femoral canal. The clot was adherent in many places, and extended into the tibial arteries. The veins were normal. Dr. Eisendrath and Dr. Bettman consider that exposure of the femoral artery in order to determine the upper limit of the occlusion is the simplest and most accurate method of deciding on the level of amputation.

MIDWIFERY AND THE UNQUALIFIED MIDWIFE.

IT is common knowledge that the proportion of births attended by midwives tends steadily to rise. In a large number of areas considerably over one-half of the total births are thus attended. In Preston, for example, the medical officer of health, Dr. H. O. Pilkington, in his annual report for 1918, shows 75 per cent. of the births as having been attended by midwives, and only 9 per cent. by medical practitioners, while in St. Helens in the same year Dr. H. J. Cates's annual report shows actually that 99 per cent. of the births were attended by midwives. While this tendency indicates, on the one hand, that patients are likely to be exposed to certain risks which might be avoided by skilled medical attention, it must, on the other, be conceded that there are possible recompenses to the patient. For it is quite arguable that the sickness and mortality from puerperal sepsis may actually be diminished thereby, since the Mother Gamps are now rapidly being hustled out of practice by age, infirmity, and the vigilant hand of the supervising authority, and the newer type of midwife, while of a markedly better stamp and education, is at the same time sufficiently afraid of consequences to shrink from undue interference with Nature's deliberate methods of delivery. She will therefore tend to eliminate that fertile source of dangers and of discomforts—instrumental delivery by practitioners too hurried or too tender-hearted to let natural processes take their course. In many areas the midwife has a serious rival in the completely unqualified handy-woman who assists at confinements for which a doctor has nominally been engaged, but at which he does not attend; so that in fact, though not in law, the woman practises as a midwife without the necessary qualifications. There is pressing need for a remedy of this iniquitous state of affairs. Yet the solution of the problem is confessedly baffling. These women are much in request among the poorest classes for their homely qualities, their stock of hoary wisdom—no less impressive when wrong than when right—their practical experience in their own persons in the production and the rearing of large but usually transitory families. Even when the patients favoured with their attentions come to grief, it is still almost impossible to find a case where the incidents are of such a nature that misbehaviour can be taken into a law court. In two recent instances of ophthalmia neonatorum in one district, the same handy-woman and the same doctor were involved, yet nothing beyond a display of inquisitiveness by the supervising authority towards each was possible, for the claim that the patient had asked the doctor to attend the confinement and the handy-woman to help in the housework, and the further statement that the doctor was prevented from attending and that the woman had therefore helped in the emergency, formed an all-sufficient reply. At present, supervising authorities under the Midwives Act have two main policies—one negative and the other positive. The negative policy is to lie in wait for the flagrant case—how long sought and how infrequently found—in which the evidence is sufficiently blatant for the doubtful issues of trial in a court of law to be faced. This course is both tedious and perilous to the prestige of the supervising authority if the latter fails to win its case; and in any event it does not deal with the root of the matter—the shortage of trained help at fees which the poor can pay. The positive policy is for the supervising authority in its alternative character of county or county borough council, or for other local authorities, by joint or separate action, to provide or to assist in the provision of trained midwives. This policy is being increasingly adopted by the multiplication of district nursing associations, and by the provision of municipal midwives. There can be no doubt that while it tends primarily to put out of action the less well qualified of the existing "bona-fide" midwives, it does also react on the unqualified handy-women who are the present-day replica of the uncontrolled midwife of 20 years ago. At the same time, legal machinery for dealing with the question more easily than is now possible would be a great boon. Practitioners must be brought to realise the unfairness of accepting midwifery cases unless they have a reasonable prospect of fulfilling their engagements. Any laxity in this matter must result in a strong temptation, to put it mildly, on the part of the cynic to look on the arrangement between patient, doctor, and handy-woman as a tacit understanding equivalent to the covering of unqualified practice.

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[1] Journal of the American Medical Association, Dec. 6th, 1919.

THE VISUAL REQUIREMENTS OF MOTOR DRIVERS.

IN the early months of 1919 a committee was appointed by the Council of British Ophthalmologists to ascertain to what extent the increasing number of street accidents might be due to defective vision on the part of drivers of motor vehicles. The chief problem before the committee was to determine the types of visual defect likely to affect a driver's power of avoiding accidents, and to devise a standard which would not penalise drivers whose visual defect is such as not to interfere with their capacity for driving with safety. The report, which has now been presented, is divided into five parts: the first recapitulating the conditions under which drivers' licences are at present granted; the second giving the number of accidents occasioned in London annually by mechanically propelled vehicles; the third enumerating the various kinds of visual defect in motor drivers from which accidents may arise; the fourth suggesting a scheme of vision testing for licences; and the fifth summarising the recommendations made by the committee. The Council of British Ophthalmologists now recommends that before a licence is granted the applicant should be required to show his ability to steer a motor-car round corners and to avoid obstacles, and before a licence is renewed the applicant should be required to sign a statement that since it was granted he has not suffered from any physical disability likely to interfere with his driving capacity. Further, that a licensed driver with visual defect who meets with an accident attributable to that defect shall be liable to have his licence cancelled or endorsed. The most important recommendation is to the effect that special sight-test certificates of three grades be granted to applicants whose sight has been tested by ophthalmic surgeons appointed for the purpose: Grade A certifying the holder's visual capacity to drive any kind of motor vehicle; Grade B his capacity to drive any vehicle other than a motor omnibus or tramcar; and Grade C his capacity to drive a motor tramcar. The standards for these three certificates are laid down in the report, which will, we believe, be acceptable both to the police authorities and to the men concerned.

THE PRESENCE OF SO-CALLED VITAMINES IN URINE.

Professor Gaglio[1] recently communicated to the Academy of Medicine of Rome the results of some experiments made in conjunction with Dr. Roseo, which tended to show that the administration of 3–4 c.cm. of human urine, slightly concentrated in a water bath, produced identical curative effects with the vitamine extracted by Funk from rice husks in pigeons suffering from artificial beri-beri produced by feeding on polished rice. Even when the animal was reduced by such diet to a condition of extreme gravity, with contraction of the muscles of the neck and opisthotonos, it recovered completely under the influence of urine given two or three times daily. Continuing the administration of rice and urine the animal remained well for some days, but then the nervous symptoms reappeared in a mild degree, and the animal lived longer than controls deprived of this treatment, the attenuated form of the disease lasting for many weeks. If, when the urine had suppressed the nervous symptoms, the diet was modified by the addition of other nutritive substances, such as yolk of egg, the animal completely recovered. In order to put an interpretation on these experiments, it might be argued that the vitamines, which are formed in the organism or which are derived from food, are eliminated by the kidneys. But it is precisely as regards the conception of vitamines themselves that these experiments seem particularly interesting. Vitamines, as we now know, are diffused throughout all kinds of food, more especially vegetables. Funk, who extracted them from rice husks and yeast, found that the more he purified them the less active they became. It would hence seem that there are several substances which have a similar action and perhaps act synergically in the sense that some, in themselves of slight activity, are capable of reinforcing the action of others. On the other hand, many artificial derivatives of pyridine and pyrimidine, and some xanthin derivatives, have been prepared, which have the same remedial action as vitamines in pigeons affected with polyneuritis. If these substances exist almost universally in food, if they can be artificially prepared, and if one can replace another, their specificity cannot be admitted, even while admitting that they represent alimentary principles indispensable to life. As to the nature of these principles, when we consider the plasma which filters through the capillary walls and irrigates the tissue cells, it must be recognised that all substances necessary to life are to be found in it. Now in this plasma, besides proteids, fats, carbohydrates, and mineral salts, there are many nitrogenous organic substances which either come from food or are produced by the metabolic changes of the organism. Such substances have been for a long time known in chemistry as *nitrogenous extractives*, and in food analysis are calculated specially as *non-proteid nitrogen*. These substances have been neglected as regards their function, being considered merely as dregs to be eliminated. But even though they may be dregs in reality, as long as they circulate in the blood they must play an important part as stimulants of nutrition and of the functions of organs. The so-called vitamines considered in this light lose the idea of specificity which has converted them into mysterious substances.

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[1] Il Policlinico, Nov. 23rd, 1919.

THE ELSIE INGLIS MEMORIAL.

Two names will go down to history associated in the public mind with the ministry of healing during the war along with those of discoverers and of highly placed administrators; they are the names of two women, one a nurse and one a general practitioner. Nurse Edith Cavell's monument is now being erected in one of London's busiest thoroughfares, though it is not as nurse but as patriot that her fame was gained. Dr. Elsie Inglis's memorial is to take the form of furthering two schemes which she had very deeply at heart: the rebuilding of the Hospice for Mothers in Edinburgh for the study of maternal and child welfare by women medical students, and the foundation of a hospital in Serbia with a training school for nurses. The "History of the Scottish Women's Hospitals,"[1] which has just appeared, is dedicated by its compiler, Mrs. Shaw Maclaren, to Dr. Inglis's memory, and is intended to promote the objects of the Elsie Inglis Memorial. The record centres round a personal appreciation of the founder of the Scottish Women's Hospitals from the pen of Miss S. E. S. Mair, the other sections of the book dealing in succession with the work at Royaumont, in Serbia, Russia, and Roumania, among the Serbian refugees in Corsica, at Salonika, and the Calcutta Orthopædic Centre. The story is told almost entirely in the words of the women who did the work, and a very moving and entrancing story it is. Mrs. Maclaren says that it will be the lasting pride of the Scottish women that it was their privilege to contribute more than one of the heroic figures which have emerged from the wreckage left by the war. To us the really astonishing thing in the history of the expedition is not so much the genius of the pioneers, who have arisen when needed at all such critical periods in the world's history, as the average merit of the rank and file of the party, working under conditions without rule or precedent. The prospect before the medical woman is happy in the light of this experience. Note should be taken of the address in London of the National Memorial to Dr. Elsie Inglis—it is 110, Victoria-street, S.W. 1.

ANAEROBIC ORGANISMS.

THE report of the Anaerobe Committee, which we summarise on another page, clears up a number of dark places in the life of the micro-organisms which shun the air. It has always been something of a puzzle to conceive how strict anaerobes, such as *B. tetani*, which live in cultivated soils, can find conditions sufficiently anaerobic to suit their mode of life. Pasteur's original explanation was that the aerobes living in association with anaerobes are able to abstract oxygen quickly enough to create loci of anaerobiosis. Kedrowsky offered the explanation that the aerobes elaborate substances of a special kind which favour the growth of anaerobes, but this view is not in agreement with the facts. That such a special pabulum is unnecessary is shown by the growth of anaerobes in pure culture on media of the same composition as that required for aerobes. Pasteur's view was modified by von Oettingen, who likened the action of aerobes to that of a reducing substance in solution, but this is a small distinction which may be ignored. It may be said that substantially Pasteur's idea still holds the field. The probable chain of events in the life of a sporing anaerobe living under natural conditions is an alternation between the spore and bacillary form with the variation of the oxygen tension in the immediate neighbourhood of the organism.

Can an anaerobic bacterium multiply in a medium completely deprived of oxygen? A great deal of labour has been expended in attempts to answer this question, which is of both philosophical and practical importance. The energy required by cells for the maintenance of life and for the performance of their natural functions is normally obtained from oxidation processes. We know that most bacteria and some animal cells, such as nucleated red blood cells, are able to exist for a time in the absence of oxygen, but their manner of life is generally altered. Thus the mould, *Mucor racemosus*, which burns glucose to CO_2 and water in the presence of oxygen, is unable to carry the process of combustion beyond the stage of alcohol and CO_2 under anaerobic conditions; at the same time the mould undergoes morphological changes. The yeast cell shows the same alteration in its metabolic activity when it is placed in an oxygen-free sugary solution. The energy for growth and function is here obtained from a chemical process which yields something like a twentieth of the energy of that derived from the usual complete oxidation of glucose. It appears, therefore, that in aerobic organisms the cellular mechanisms, by which chemical energy is utilised, are adaptable to reactions other than those which normally occur. The metabolism of anaerobes is of a special kind, and it is of great importance to know whether absolute anaerobiosis is optimal or whether a very low oxygen tension is necessary for maximum growth. The technical difficulties involved in the solution of the problem are very great; for example, the oxygen condensed in an excessively thin film on the surface of glass cannot be neglected. Noguchi, in his work on the cultivation of the *Treponema pallidum*, used a perfectly air-tight desiccator, which was evacuated under a pump, washed free of air by means of a stream of pure hydrogen, evacuated again, and the process repeated until the gas in the desiccator was unable to darken a clear solution of pyrogallol in caustic soda. By means of such methods sufficient evidence has been accumulated to show that the strict anaerobes can grow and divide under perfectly anaerobic conditions, but most observers have concluded that a certain minute amount of oxygen is necessary for optimum growth in which the oxygen takes part. The general rule may be laid down that there are no sharp lines dividing organisms into aerobes and anaerobes. Most bacteria are able to exist comfortably over a wide range of oxygen tensions. The aerobes are adapted for growth in an atmosphere containing oxygen in a percentage approaching that of air; the anaerobic bacteria vary in their repugnance to oxygen within limits ranging from 0 to about 20 mm. tension.

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[1] Edited by Eva Shaw Maclaren. Hodder and Stoughton. Pp. 408. Price 7s. 6*d*.

HOUSING AND PLANNING STANDARDS.

THE medical officer of health who wishes to know his own legal status and duties as a sanitary officer, and in addition those of the local authorities with whom he coöperates, will find the law on these matters clearly and adequately expounded in the new edition of Mr. W. A. Willis's volume on housing.[1] He will also need to possess the latest Memorandum issued by the Ministry of Health,[2] which deals, not only with laws and regulations, but also with the policy to be adopted in carrying them out. Financial assistance is available under the Government's scheme for the demolition of unhealthy areas, as well as for the construction of new houses. The general policy to be adopted towards unhealthy areas is "hasten slowly." Imperfect houses are to be made fit for habitation even if they cannot be made desirable. By the removal of a few houses, the lighting and ventilation of those that remain may be greatly benefited. The standards of fitness are briefly enumerated, those at the head of the list being held to be generally the more essential.

> The house must be (1) free from serious dampness; (2) satisfactorily lighted and ventilated; (3) properly drained and provided with adequate sanitary conveniences, and with a sink and suitable arrangements for disposing of slop water; and (4) in good general repair; and should have (5) a satisfactory water-supply; (6) adequate washing accommodation; (7) adequate facilities for preparing and cooking food; and (8) a well-ventilated store for food.

The last sentence in the chapter on standards illustrates the caution with which the Ministry of Health moves towards demolishing that which it finds it so difficult to create: "Cleanliness and freedom from vermin should be secured; a house continuously and seriously infested with vermin may warrant a closing order." The third section of the memorandum may be accurately described as a chapter on the standards of planning and architecture. It is laid down that there should be a small playground for the use particularly of young children within about half a mile and a recreation ground of moderate size within about a mile of every dwelling, experience having shown that the use by children of open spaces beyond these distances is generally slight. For tenement buildings, where owing to density of population this method of housing is permissible, it is laid down on the triple score of health, amenity, and cost, that the height should never exceed three storeys. It is the sad experience of cities with tall picturesque buildings that the young children who live in the upper storeys are kept indoors to an extent detrimental to their vigour and healthful growth. In a circular letter appended to the Memorandum Dr. Addison solicits the help of the county medical officers of health in obtaining a regional housing survey, and gives the welcome information that the medical staff at the Ministry is being strengthened to cope effectively with the many questions relating to housing.

THE RECENT PARLIAMENTARY SESSION.

ON Tuesday afternoon, Dec. 23rd, a Royal Commission gave assent to a number of legislative measures in which the medical profession is keenly interested. Among the Acts which then received the Royal Assent were the Mental Deficiency and Lunacy (Amendment) Act, the Nurses' Registration Act, the Nurses' Registration (Scotland) Act, and the Nurses' Registration (Ireland) Act. In the King's speech occurred the following paragraph:

> I have also assented to Bills for the establishment of the Ministry of Health in England and a Board of Health in Scotland and a Council of Health in Ireland. I anticipate that, when they are in full working order, they will prove invaluable in coördinating and improving the service of the health of the people.

Parliament stands prorogued until Feb. 10th.

OCCUPATIONAL ULCERS.

TWO new conditions have been made notifiable under the Factory and Workshop Act of 1901. One of these is the epitheliomatous ulceration due to tar, pitch, bitumen, mineral oil, paraffin, or any compound, product, or residue of any of these substances; and the other is chrome ulceration, due to chromic acid or bichromate of potassium, sodium, or ammonium, or any preparation of these substances. In industrial employment ulceration of the skin is not infrequently set up by the substances handled. Under appropriate treatment, at no matter what age, such ulceration usually heals quickly, and should it recur will again heal with rest and treatment. In the case of those handling tar and similar substances, however, especially when the workers are over 35 years of age and have worked for many years at a particular operation, the ulceration following on the skin irritation set up may not heal, but spread over a larger surface. This form of ulceration, which occurs with relative frequency on the scrotum, is then to be regarded as epitheliomatous, and is to be notified as such to the Chief Inspector of Factories at the Home Office. When chrome compounds and their solutions remain in contact with the broken skin, and sometimes even with a very sensitive skin in the absence of an obvious broken surface, they give rise either to a general eczematous ulceration or a circumscribed ulcer known as a "chrome hole." Both these conditions, when definitely ulcerative, are now notifiable. Recurring attacks of either epitheliomatous or chrome ulceration should also be reported when a different part of the body is attacked.

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[1] Housing and Town Planning. By W. A. Willis, LL.B. Lond., Barrister-at-Law. London: Butterworth and Co. and Shaw and Sons. Second edition. 1919. Pp. 282.

[2] Manual on Unfit Houses and Unhealthy Areas. Vol. I.: Policy and Practice. London: His Majesty's Stationery Office. 1919. Pp. 32. 1s.

THE PREVENTION OF INFLUENZA.

In view of the possibility of a further outbreak of influenza this winter the Ministry of Health has issued a circular (No. 50) and a memorandum (No. 2 Med.) dealing with the measures which should be taken for preventing the spread of infection and for lessening mortality from the disease. Influenza spreads with such extreme rapidity that arrangements for dealing with outbreaks require to be planned out in considerable detail, and the part to be played by each officer determined and understood in advance. It is especially desirable to make provision for sufficient nurses to be immediately available when their services are required, and any sanitary authority may provide medical and nursing assistance for its poorer inhabitants, including the dispensing of doctors' prescriptions. The chief novelty is the gratuitous supply of anti-influenza vaccine as a formula containing a larger proportion of Pfeiffer's bacillus than formerly. It is represented as a vaccine against secondary complications, of which the degree of utility is not yet established, but which should be used now if it is used at all, not kept until a new wave is on us. Supplies of this prophylactic vaccine will be furnished to medical officers of health for distribution to all medical practitioners in their area who desire it, and its systematic employment would throw light upon a very dark corner of epidemic disease. Applications for vaccine in quantity should be addressed to the Government Lymph Establishment, Colindale Avenue, The Hyde, London, N.W. 9, stating the quantity required. The Ministry of Health lays great stress on the publication by each authority of full information respecting the facilities provided for assisting persons suffering from influenza and on the preparation of leaflets, posters, and other educational methods, setting out the precautions to be adopted to minimise the risk of infection and complications.

At the end of the memorandum a schedule is given of the ten points to be carefully considered by every sanitary authority.

1. The appointment by the authority of a small emergency committee, to whom, with the medical officer of health, should be delegated full powers to act and incur necessary expenditure.
2. Medical practitioners and any voluntary health workers in the district to be consulted through their respective local organisations and their coöperation invited in determining the practical methods to be adopted.
3. A scheme as regards the provision of nursing and other assistance to families stricken with influenza to be formulated, such scheme to be carried out under the direction of the medical officer of health.
4. Division of the town or district for this purpose into areas, to each of which one or more trained nurses are allotted for domiciliary nursing, the nurses to act in regard to individual patients solely under the direction of the medical practitioner in charge of the case.
5. Women to be enlisted as "home helps," to assist with cooking, care of children, and ordinary domestic work. Inquiries to be made to ascertain where such assistance is most urgently needed.
6. Utilisation to the best advantage of health visitors and other members of the staff of the authority and of institutions under the control of the Council; improvisation of temporary creches and of special kitchens in which food and invalid diet can be prepared.
7. Allocation to influenza patients of one or more wards in the isolation hospital or in some other available and suitable emergency hospital.
8. Issue of notices and leaflets to the public.
9. Prevention or mitigation of overcrowding, and securing adequate ventilation in public buildings or conveyances under the control of the Council.
10. School closure may be specially useful in rural and smaller urban districts.

These are measures which, in the opinion of the Ministry of Health, may in the aggregate reduce the opportunities of exposure to infection. By thus helping to space out the epidemic, something may be done to prevent serious dislocation of the ordinary life of the community—a dislocation which itself increases the danger by making proper care of the sick impossible. The most important services which can be rendered, however, consist in the organisation of the available nursing service and the provision of assistance to influenza-stricken households.

THE CHINA MEDICAL BOARD.

No larger field for medical education is to be found anywhere in the world than that of China, with its population of 300 or 400 millions. To train the necessary doctors for China might fitly be described as a Herculean labour. It is not wonderful that what is probably the largest single fortune ever amassed in history should be seeking its outlet in this field. We welcome the work for this object undertaken by the Rockefeller Foundation (61, Broadway, New York), which has just received a further donation of 50 million dollars from the "Oil King." The fourth annual report, from Jan. 1st to Dec. 31st, 1918, lies before us. Peking is the centre of their operations, and they have wisely joined forces with the only other unofficial body undertaking the task in any large way—namely, the doctors who have gone to China in connexion with the missionary societies of England and America. Some 5 million dollars are being put into land, buildings, and equipment in Peking, and a staff of over 70 persons are associated with the Union Medical School there. The larger number of these seem to have high qualifications and good experience. To read through the list gives the impression that the China Medical Board is taking its task seriously. In order to secure a constant stream of well-prepared students, the board has appreciated the necessity for helping a number of institutions where preliminary teaching is given, and no less than 19 hospitals and three other medical schools have been assisted by grants. Another most important service rendered is the granting of scholarships for post-graduate and research work to missionary doctors on furlough. In this way 35 medical missionaries and nurses have been helped and 11 Chinese doctors, besides others, such as students and pharmacists. It is well to see great wealth being spent with discretion and largeness of vision to help in alleviating human suffering. The means by which such wealth has been accumulated, and the value of the system that makes its accumulation possible, may be open to criticism, but there can be no doubt that, once accumulated, the method of disposal which the Rockefeller Foundation has conceived and is carrying out is of good augury for the future.

THE IRISH PUBLIC HEALTH COUNCIL.

A well-informed Irish correspondent writes:—There is a growing feeling among the public, as well as in the medical profession, that the Irish Public Health Council would be wiser if they put their cards on the table and showed clearly in what direction their deliberations were tending. Rumours differ as to the position of affairs in the Council, with the result that an atmosphere of suspicion is being created, inimical alike to clear thinking and practical action. In the last number of the *Journal of the Irish Medical Association* there is a note to the effect that the members of the Council propose to have a conference with the Irish Medical Committee so as to attempt to decide who, under the new scheme, will receive free medical attendance. This will raise several questions:—(1) What is to be the solution of the Poor-law medical question with such antagonistic elements as the unfortunate dispensary medical officers (who feel very dissatisfied with the support given them in the past by the central authority—the Irish Local Government Board) and their masters, the guardians, whose chief object is to keep down taxation? (2) How will the union and county infirmaries and the town and city hospitals be affected by such a plan? (3) What is to be the position of the insured, even in the truncated scheme in force in Ireland, so distasteful to the public, to the insured (in constant quarrel with the societies), and to the panel doctors? (4) What about the housing question—the bed-rock of public health—and the milk-supply? (5) Are new maternity homes to be erected over the country? A large body of the medical profession and public see that the schemes recently put in force by the authority of the Local Government Board to cope with tuberculosis, with infantile mortality, and with the spread of infectious epidemics have failed. The only result seems to be greater expenditure than ever of public money, with no concomitant lowering of the mortality and with no diminution in the prevalence of preventable disease. These people are asking, Is there to be in Ireland a State public health scheme, and, if so, is it to be of a part- or of a whole-time nature? Ireland never was so financially prosperous as at present, and as a result young men and women are crowding the medical schools, their parents believing that there will be soon an immense number of well-paid medical officials administering a State Medical Service. Young men recently qualified are also coming back to the universities and schools to prepare for a public health qualification. One thing is clear, no Irish Medical Committee will attempt to advise an Irish Public Health Council on such difficult questions as those I have set out until an expression of opinion from the whole medical profession has been obtained. If the Irish Public Health Council is to make any progress they must state openly what measure of public health they propose to suggest for Ireland, and they must remember that it is the medical profession who will have to carry it out, and with whom its success or failure rests.

INDEX TO "THE LANCET," VOL. II., 1919.

THE Index and Title-page to Vol. II., 1919, which was completed with the issue of Dec. 27th, will be published in THE LANCET shortly.

THE DYING-OUT OF NATIVE RACES.

BY W. H. R. RIVERS, M.D., F.R.S.

THE death of peoples is a subject peculiarly fitted for the consideration of an Institute of Public Health. Just as it is the business of medicine to discover why certain members of a community fail to last out the usual span of life or live on in an enfeebled state, so is it the business of public health to discover the causes which interfere with the vigour and vitality of peoples. It is well that such an institute as this should not merely attend to the factors—material, mental, and social—which influence the health of its own community, but should extend the field of its inquiries even to the study of widely different races. In the fate of those unfortunate peoples who have gone under in the struggle for existence, or are tending to this end, we have only an extreme case of a process which it is the aim and business of public health to avert. My object to-day is to inquire into the causes which are producing the extinction of a people for whose welfare this country has made itself responsible.

A lecture concerning disease and death usually takes one of two forms. It may attempt to give a complete account of some subject, the systematic lecture of the schools, or it may take the form known as clinical, in which a patient who illustrates some special feature or features of interest is brought before the audience and made the text by means of which the lecturer may bring forward matter for instruction. When I first undertook to give this lecture I thought of dealing with the subject in the more systematic way, and was preparing a survey of the world and of the causes which are leading to decrease of population here and its growth there. It occurred to me, however, that in the short time at our disposal I could do more justice to the subject if I chose the method of the clinical lecturer and brought before you a special patient, one, I am afraid, sick almost unto death, through whom I can illustrate some of the more salient facts to which I wish to direct your attention. I cannot, as they would at St. Bartholomew's or St. Thomas's, bring the patient before you so that you can see for yourselves the ravages of disease and hear with your own ears the complaints of the sufferer. I must be content with the attempt to bring before you in imagination the people of the islands of Melanesia, whom I have chosen as the patient of this clinical lecture.

Diversity in Physical Type and Language and Customs in Neighbouring Tribes.

If you will look at the map of the Pacific you will see to the east of Australia, extending south-eastwards from New Guinea, a long chain of islands beginning with New Britain and New Ireland, passing through the Solomons and New Hebrides, down to the Loyalty Islands and New Caledonia. The many islands of this prolonged archipelago are inhabited by a people who were almost certainly of original negrito or pygmy stock, among whom there have come at various times the immigrant bands, allied to ourselves, who, farther to the east, have peopled the islands of Polynesia. These immigrant peoples, differing widely in physical appearance from the original inhabitants, settled in varying numbers in different groups of islands, so that there has been produced a high degree of physical diversity of the people. Though all show the negroid characters of the indigenous inhabitants, they vary greatly in colour of the skin, form of the nose, and curliness of the hair, the features which especially distinguish the black from the white division of mankind. So great is the physical diversity thus produced that when time has accustomed the eye to discern the differences, they are seen to be quite as great as those which in our own continent distinguish the tall blonde Scandinavian from the short swarthy type of Spaniard or Italian.

Corresponding with this physical variety there is an even higher degree of linguistic and cultural diversity.

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[1] A lecture delivered at the Royal Institute of Public Health on May 22nd, 1918.

Though most of the languages belong to one family, here and there, in Fila and Meli, in Bellona and Sikaiana, we find speakers of the widely different though related Polynesian tongue, while in a few cases, such as Savo and Vella Lavella in the Solomons, are found examples of a language belonging to a family which differs as widely from the rest as Magyar or Finnish differ from the Aryan languages of Europe. Comparison with Europe, however, wholly fails to do justice to the Melanesian diversity. Within an island no larger than the Isle of Wight may be found three languages differing from one another as greatly as any three languages of Europe, while dialectical differences are found within a space smaller than the average English parish.

Accompanying this linguistic diversity is an immense variety of custom and institution. Hardly any of the strange human customs which have excited the curiosity and wonder of travellers fail to show their presence among this people, while forms of social organisation and of marriage unknown elsewhere are found among them. Here again the diversity is very great. In one island typical totemism occurs; in another, not far removed, no trace of this form of social organisation exists. One set of islands is altogether dominated by an organisation with many similarities to the secret societies of Europe, while in another no trace of them nor any tradition of their presence in the past is found. In one district there exists a special form of warfare with the sole object of capturing human heads as offerings to the dead, while elsewhere are peaceful people who only resort to war, and then only of a largely ceremonial character, on the occasion of certain social offences, such as homicide or rape. The one feature which is common to all is the permeation of social custom by a firm faith in the reality of the life after death and in the influence of the dead upon the living, a belief revealing itself in countless rites of prayer and propitiation accompanying almost every act of their daily lives.

Effect of Communications with the Civilised World.

Among these lowly peoples, simple and yet full of interest, there came first the brief visits of the Spanish explorers of the sixteenth century, followed by those of the French and British navigators, including Captain Cook. Then followed the occasional visits of a whaler, and the more frequent and prolonged excursions of hunters for sandal-wood. These were followed by settlers, who brought to them the goods of other lands in exchange for their coconut, pearl-shell, and ivory-nuts. With the calico and other useful goods they brought not only the relatively harmless tobacco, but also alcohol and firearms. At the same time there came among them men and women whose object it was to wean them from the customs and beliefs of their fathers and replace them by others of a very different kind.

In addition to the means of death in the form of firearms brought with them by their visitors, there came also the far more deadly diseases, which swept many out of existence and enfeebled the vitality of those who were left. Following the coming of these various influences from without, the numbers of the people so rapidly declined that now, less than a century after the first settlement of Europeans, there are islands, once full of life and vigour, which are either wholly unpeopled or show a miserable remnant to tell the tale of their misfortunes.

It is intended to publish shortly, under the auspices of the Melanesian Mission, an account of the decrease of the population, with a discussion of its causes. I must be content here to give you a few examples from my own observation. In many islands of the New Hebrides the population has practically disappeared. The large island of Fate (Sandwich Island) once had an extensive population spread over the whole island, but when I was there four years ago I could not discover that there were any survivors of the people of the interior, all the existing inhabitants living on a few small islands on its coasts. Further north, the shores of the island of Aore are strewn with sherds of the old native pottery, showing the former presence of a considerable population, but I was told that there are now only three surviving inhabitants. In Espiritu Santo, usually known as Santo, the largest island of the New Hebrides, the inhabitants of several villages on the western coast have entirely disappeared, and their place is taken by a few wretched people who have moved down from the interior.

At the southern end of the island the people of Vulua 20 years ago numbered at least 200, according to the statement of the Rev. J. G. Bowie, the missionary of the district. Now there is only a mere handful of miserable people collected together in one small village, fully conscious that they are the last dying remnant of a once happy and prosperous tribe.

The same story holds good of the Banks and Torres Islands to the north, the destruction having been especially great in the latter group. In the Santa Cruz group, large islands which are said to have been well peopled are now uninhabited, the decline here having been especially great during the last few years. In the Solomon Islands, the tale is less pitiful, but here also the population of many islands is diminishing so rapidly that unless something is done to stay the decline, it will soon share the fate which has already overtaken so many parts of the New Hebrides.

Rapidity of Decline.

The rapidity of the decay at the present time has been brought home to myself very closely by two instances which, though of no great value as evidence, may yet be cited in illustration.

During a visit in 1908 I gained a large amount of valuable information from two men, fairly young and apparently full of life and vigour, one a Polynesian living in Melanesia, the other a native of the Banks Islands. I looked forward to their help in future visits to their islands, but before I had had time to record the knowledge they had shared with me I heard that both were dead. In 1914 I was again in Melanesia and obtained from a still younger native a most important account of a district in the island of Ambrim, whose people had been almost entirely uprooted and destroyed by a volcanic catastrophe. Before I have been able to put this fragment of vanishing knowledge upon record I hear that the witness is already dead, a victim to the scourge of dysentery.

Analysis of Causes of Decline.

Having given this brief sketch of the people of Melanesia and of their impending fate, I shall now attempt an analysis of the causes to which their decline is due and consider measures by which a mortal ending of the disease may even yet be averted.

I will begin with one group of factors which has been frequently brought forward in explanation of the decline of population. It has been supposed that the Melanesians were already a dying people before the European invasion, and that their decline was due to faults inherent in their own culture. In the first place, there is no evidence of any value that the people were decreasing in number before the settlement of Europeans. It may be true that here and there the people already showed some signs of diminution on the arrival of the missionaries, to whom we chiefly owe these reasons. It must be remembered, however, that the people had already been subject for many years to certain European influences, and those of a far from harmless kind.

When these apologists for the effects of their own civilisation give reasons for the supposed original decadence these often bear their own refutation on the face. Thus, one writer blames the heathen custom of polygamy, but in the same paragraph states that the practice is confined to the few. As if a custom confined to the few could ever be the cause of the dying out of a whole people. As a matter of fact, the polygamy of Melanesia is very different from that of Africa, being so exceptional, and the number of wives so small, as to have no appreciable influence upon the people, whether for good or evil.

Another cause which has been put forward is the special kind of consanguineous union usually known as the cross-cousin marriage. This is a marriage between the children of a brother and sister which takes place habitually, while marriage between the children of two brothers or of two sisters is strictly forbidden. This subject was fully investigated by the Commission which, more than 20 years ago, inquired into the decrease of the native population of Fiji. In their report,[2] which forms a storehouse of most valuable facts concerning our topic of to-day, it is shown conclusively that this factor had not contributed towards Fijian decadence, but rather that these consanguineous marriages were more fruitful than marriage between wholly unrelated persons.

I shall deal presently with native customs in relation to our subject, and hope to show that it is rather the indiscriminate and undiscriminating interference with them which stands forth prominently among the causes of decay.

In turning to the real causes of the decrease of population in Melanesia, it is necessary to bear in mind the double nature of fluctuation in population which is fully recognised among ourselves. Diminution of population may be due either to increase of death-rate or decrease of birth-rate, or to both combined. I shall bring forward definite evidence to show that it is necessary to distinguish between these two factors in Melanesia.

Influences increasing the Death-rate.

I will begin with the group of causes which has hitherto chiefly attracted attention, the causes, immediate and remote, of increase of the death-rate.

In a subject in which we shall find little on which to pride ourselves it is satisfactory to be able to exclude one cause which has contributed in so small measure to the decay of native races in other parts of the world. There has been no deliberate attempt to exterminate the people such as has disgraced the history of our relations with regions more suited to European habitation than the sweltering and unhealthy islands of Melanesia. The injurious influences due to European rulers and settlers have been unwitting. Owing to the need for the labour of those accustomed to the tropics it has always been in the interests of the settlers that the native population shall be alive and healthy. In so far as native decay is due to European influence we have to lay the blame on ignorance and prejudice, not on any deliberate wish to destroy.

Disease.—In considering the death of a people, as of an individual, it is natural to think first of disease. Disease is the name we give to a group of processes by which the size of a population is adapted to the needs and demands of its environment. It is one of the means by which the size of a population is adjusted so as to enable it best to utilise the available means of subsistence. Before the arrival of Europeans Melanesia had its own diseases, by means of which Nature helped to keep the population within bounds. Everything goes to show that the population of Melanesia was well within the limits which the country was capable of supporting, but it is not so certain that it was far within this capacity in relation to the very simple means the people possessed for exploiting its resources. So far as we can tell, there had been set up a state of equilibrium between the size of the population and the resources of the country. All our recent knowledge goes to show that the diseases due to infective parasites tend to set up a state of tolerance and habituation which renders a people less prone to succumb to their ravages, and there is no reason to suppose that Melanesia was any exception in this respect. Thus the people are largely habituated to the malaria which certainly existed among them before the coming of European influence.

Into this community thus adapted to the infective agents of their own country the invaders brought a number of new diseases—measles, dysentery, probably tubercle and influenza, and last but, unfortunately, far from least potent, venereal disease. These maladies had effects far more severe than those they bring upon ourselves, partly because they found a virgin soil, partly because the native therapeutic ideas were not adapted to the new influences, so that remedies were often used which actually increased their harmfulness. Many of these introduced diseases are still drawing a large toll on the numbers and energies of the people, the two which seem to be exerting the most steady influence, so far as my observations show, being dysentery and tubercle.

Alcohol.—A second group of introduced causes of destruction is composed of what may be called the social poisons, such as alcohol and opium. Though it is possible that the people use tobacco somewhat to excess, the only poison which needs to be considered in Melanesia is alcohol. In certain parts of Melanesia there is no question that it has exerted in the past, and is still exerting, a most deleterious influence, but it is satisfactory to be able to say that its noxious influence has been reduced to negligible importance in those parts of the archipelago which are wholly subject to British rule, where it is penal to sell or give alcohol to a native.

Firearms.—A third direct cause of increase of the death-rate is the introduction of firearms, by means of which the comparatively harmless warfare of the natives is given a far more deadly turn, but this cause has never been very potent in Melanesia, and is now well under control.

(To be concluded.)

ANNUAL REPORT FOR 1918 TO THE BOARD OF EDUCATION.

THE annual report for 1918 of the chief medical officer of the Board of Education deals fully with the medical aspect of the new powers and duties of education authorities under the Education Act, 1918. The former requirement of medical inspection in public elementary schools is extended to secondary and continuation schools. Local education authorities now *must* secure medical treatment for public elementary school children, and *may* extend it to pupils in other schools; the employment of any individual child may be prohibited by new by-laws upon the report of a school medical officer; physical training of children and young persons up to 18 years of age is facilitated by local education authorities being enabled to make provision for holiday camps, playing fields, and other arrangements for social and physical training in the day or evening.

Medical Inspection in Secondary Schools and Continuation Schools.

The purpose of medical inspection is somewhat different at present in secondary and elementary schools. In secondary schools education is continued to a later age, and includes the period of puberty, during which the pupils, and especially the girls, are liable to mental and physical fatigue and overstrain. Athletic exercises play a larger part in the curriculum; medical inspection is directed towards the detection of tendency to cardiac weakness or other physical defect likely to be increased by any special form of physical exercise. The Board state that a full examination should be made at the ages of 12 and 15 years, and a yearly examination after 12 years of age, the degree and extent of which would vary according to the previous record and other circumstances of the pupil. The inspections which have already been carried out show that 25 to 50 per cent. of the pupils are usually found to require treatment, mostly for dental caries, defective vision, enlarged tonsils, disorders of the heart, malnutrition, anæmia, spinal curvature, and flat-foot. Treatment is usually given by the family doctor, except in certain municipal schools, where advantage is taken of facilities provided by the authority.

A new chapter in preventive medicine is opened by the extension of the work of the School Medical Service through the all-important period of a child's life, when he is passing from the years of school age to those of choice of, and entry into, some branch of employment. Medical inspection at the continuation school is necessary to detect defects which may render particular forms of employment unsuitable for a young person. It is also required in order to ascertain new or accentuated defects arising from employment, especially for the detection of any poisoning, lung trouble, injury to vision, cardiac strain, tuberculosis, or other physical damage likely to be caused by any special form of industrial employment. If a welfare supervisor or a similar person appointed by a firm assists the medical officer in securing treatment for defects, special care must be taken to avoid any suggestion that the results of medical inspection are being used unfairly to prejudice prospects of employment. It will generally be found most convenient to extend to pupils in continuation schools the "clinic" and other facilities available for children in elementary schools. A fair number of industrial concerns have made, in connexion with their welfare schemes, certain definite provision in respect of the physical well-being of young persons and others in their employ. A whole-time medical officer is often employed; all new employees are medically inspected; dental inspection and treatment, baths, remedial exercises, and meals are provided. Where such whole-time medical officers are employed the introduction of the medical board system would be useful with the school medical officer or one of his assistants as a member of the board. In this way the school medical officer will be thoroughly familiarised with the type of defect or child unsuitable for any form of employment offered by the firm, and coöperation between the medical officer of the firm, the school medical officer, and the juvenile employment officer of the education committtee will be facilitated. The Lincs (Lindsey) Education Committee have drawn up a set of draft rules, given in the report, which should serve to ensure that no child is employed in a manner prejudicial to his health and education.

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[2] Report of the Commission appointed to inquire into the Decrease of the Native Population (Colony of Fiji), Suva, 1896.

Physical Training.

Sir George Newman points out that physical training is not playing the part it should in the education of children and young people. Physical training cannot be properly organised without organisers; he is, fortunately, able to record that 51 authorities are now employing recognised organising superintendents, a very considerable increase having been made within the last year or two. No longer is it necessary for men to seek training abroad; one-year courses of physical training have now been arranged at the Municipal Training College for Men at Sheffield, primarily for certificated teachers who have served with the Army Physical Training Staff and have shown special ability for physical training. The Board of Education are encouraging the treatment of such deformities as spinal curvature at school clinics by remedial gymnasts. At present 68 bodies (local education authorities and voluntary associations) are conducting approximately 254 play centres; the organiser of physical training should be closely associated with these centres and be generally responsible for the games, dancing, physical training, &c., which form an important part of the training.

In the autumn of 1918 the Board appointed a small representative committee to consider recommendations invited from experienced gymnastic teachers as to alterations of the existing syllabus of physical exercises. As a result, two pamphlets have been issued, one dealing with physical exercises for infants, the other with suggestions in regard to games, and the syllabus has been slightly modified. Generally speaking, the new syllabus is less formal, "breaks" rather than rests between the exercises have been recommended and half the lesson, it is suggested, should be given up to "general activity exercises," including games.

In view of the importance of open-air education, all those interested in education will welcome the experimental arrangement of the London County Council, whereby grants are made towards school journeys. The remainder of the costs are borne by the parents and the School Journeys' Association. Liverpool and Birmingham are among the other authorities which make similar provision.

Surgical Tuberculosis.

Mr. H. J. Gauvain, in a report on a hospital school for the treatment of surgical tuberculosis, invited by the Board of Education, states that "tuberculosis officers, while recognised experts in the treatment of pulmonary tuberculosis, have often had little experience in the diagnosis and treatment of surgical tuberculosis. Facilities for their instruction in surgical tuberculosis should be available at special hospitals devoted to that condition. School medical officers would also greatly benefit by a course of special study at such special hospitals, as earlier diagnosis of surgical tuberculosis would then be often possible with its corresponding advantage to the patient." Study leave is provided by the Navy, Army, and Indian Medical Services; similar provision for members of the Public Health Service can only be a matter of time.

Coöperation Between School Attendance Officers and School Nurses.

Satisfactory arrangements are necessary to ensure full coöperation between school attendance officers and school nurses. Absence from school is largely on account of illness, real or alleged; progress is being made in the appointment of officials equipped with the medical knowledge necessary to carry out the work satisfactorily. A school attendance officer, useful as is his work on the penal side, cannot be expected to have the knowledge of medical work possessed by the school nurse, who has given at least three years of her life to hospital work. The need for school attendance officers will always exist, notably in rural areas, but in towns, when vacancies occur, the readjustment of the work and the advisability of the appointment of an attendance officer nurse should be considered. At Bradford it has been decided to appoint four women as attendance officer nurses. Their duties will be to visit and report on all cases referred to them by the ordinary officers in which ill-health is given as a reason for persistent irregular attendance; they will either take steps to secure that the necessary medical treatment is obtained by the parents or refer the matter to the prosecuting officer.

Prosecutions have for the first time been undertaken for neglect of children who had suffered from scabies. In 1918 the education committee of the Durham County Council authorised legal proceedings to be taken under Section 12 of the Children Act, 1908, against parents whose children had suffered from scabies for many months, after having been instructed in the methods of ridding their family of the disease. As a result in 7 out of the 10 cases the children were cured before the adjourned cases were re-heard, and Dr. Eustace Hill was able to report that scabies decreased in the county.

Provision of Meals.

In the section on the provision of meals is included a very practical résumé of the Memorandum of the Committee on Accessory Food Factors or Vitamines. The quantities required for one-course non-meat dinners for 100 children as provided at Hull are given. Dr. E. J. H. Fraser states that the change to vegetarian diet which was necessitated by the compulsory rationing of meat caused some trouble at first, the children appearing to dislike the food, but later they consumed it with enjoyment. Meals containing beans were not popular. In view of the advisability of a mixed meat and vegetarian diet and the indisputable fact that it is the meat element of the diet that parents fail to provide such vegetarian meals should only be provided when circumstances prevent the use of meat. For rural schools where the children come from a distance the arrangements for the supply of a mid-day meal at a West Sussex school serve as a model. The regularity of the attendance was unusual—95 per cent. for nearly three years. The school includes 60 infants, many of whom live from one and a half to three miles away.

The Blind.

A school medical policy for the blind child is outlined in the report; the especial need of nursery school provision and vocational education is clearly demonstrated; no less than 12 per cent. of the blind have not received any form of industrial training. The Departmental Committee on the Welfare of the Blind recommended the expansion of facilities for the separate elementary education of myopic and partially sighted children. The number of blind persons of all ages in England and Wales is 33,965; of these the Advisory Committee on the Welfare of the Blind were able to obtain information relating to 25,840; 20 per cent. of the blind population they ascertained suffer also from mental deficiency, including epilepsy and serious nervous debility. It is fortunate, therefore, that the Birmingham Institution for the Blind, in conjunction with the National Institute for the Blind, propose to establish an institution for some 100 blind mentally defective children at Smethwick. A small institution for 39 blind mentally defectives is already provided at Hastings; the need for a similar institute for the North of England is self-evident.

There is a secondary school for the blind—the Worcester College for the Higher Education of the (Male) Blind, whence half the pupils proceed to the universities. The list of old pupils securing successful careers includes 41 clergymen and ministers, 8 teachers of music, 7 teachers of other subjects, 1 barrister, 5 solicitors, 4 engaged in commerce, 2 masseurs, and 4 farmers. The remainder include many boys of independent means who live at home. Sir Arthur Pearson contemplates the establishment of a school for the higher education of girls at Chorley Wood.

Medical and Dental Treatment.

The provision of medical treatment for elementary school children has reached such a stage that it is reasonable to give the number of authorities who have not made such provision. Of 318 authorities 58 have not provided treatment for minor ailments, 76 have made no provision for treatment of defective vision, 83 no provision for supplying spectacles, 149 no arrangement for treating dental defects, and 189 provide no treatment for enlarged tonsils and adenoids.

The section on dental disease and treatment includes quotations from three significant reports dealing with the whole question—viz., the report of the Departmental Committee on the Dentists' Act, 1878, the proposals of the British Dental Association, and the special report of Mr. Norman Bennett, the chairman of the Representative Board of the British Dental Association, who was requested by the Board of Education to visit various school dental clinics in a consulting capacity and report as to their working and administration. The reports differ as to the advisability of meeting the shortage of qualified dentists available for the treatment of school children by the appointment of dental dressers working under the supervision of a qualified school dentist. The Departmental Committee strongly expressed their approval of a system of dental dressers in school dental work under competent supervision, but their recommendation must be read in connexion with their recommendations respecting the reorganisation of the dental profession. The National Dental Service Committee, whose suggestions were adopted by the Representative Board of the British Dental Association, considered that in suitable cases and under careful regulations senior dental students might be allowed to work in school dental clinics. Mr. Bennett holds that the value of dental dressers remains problematical; if they should come to be employed extensively they should be given a special course of training at a dental hospital. He is convinced that "if the dentist were operating on his own patients he could not effectually supervise more than two dressers using chairs one on each side of his own; if he were only supervising but not operating he could, of course, manage more; each of these dressers, however, would frequently be in need of assistance, and the dentist ought in any case to do a considerable amount of operating on the patients of his dressers." He makes the obvious point that the usefulness of dental dressers must be limited to urban districts where there are several chairs in one room, but when we consider that Cambridge, with a school population of 7500, can find work for three whole-time school dentists it is clear that, even if the services of dental dressers are limited as above, there is ample scope for their employment. Mr. Bennett considers that, although some school dentists desire autonomy, school dentistry has intimate relations with school medical treatment, of which, indeed, it forms a part. He is strongly of opinion that more effective supervision is necessary, but that the control should be central, and that there is at present little check on the general organisation of the school dentists' work. There can be no possible objection to the work of school dentistry as a whole being inspected by a dental inspector of the Board of Education; his visits would in all probability be as welcome to the school dentists as those of the medical inspector of the Board of Education are to the school doctor. In view of the developments in the direction of providing treatment for expectant and nursing mothers and tuberculous patients, almost always in association with the school dentist, and of the proposal for inspecting and treating dental disease in children under 5 years of age, it would be extremely unfortunate if the dentists' work were removed from the general direction of the school medical officer, who is usually the medical officer of health. Mr. Bennett's report is very valuable both to the 169 school medical officers who are ultimately responsible for existing school dental clinics, and to the school medical officers on whom is placed the duty of making arrangements to initiate new schemes of school dental treatment. He clearly indicates the need for dental treatment before the age of 7 years; all children should be inspected and treated as soon as possible after reaching the age of 5 years. The maximum interval before re-inspection should be one year. General or local anæsthetics should, practically always, be used for the extraction of permanent teeth; for temporary teeth they are not usually necessary unless several are to be extracted, when a general anæsthetic is very desirable; local spray or other application is very useful for the extraction of loose or insignificant temporary teeth or roots. The custom of giving monetary rewards to children who silently endure painful extraction Mr. Bennett considers to be radically wrong; the infliction of unnecessary pain is scientifically obsolete and an important deterrent of future treatment.

The work of school dentists should be extended beyond the treatment of caries, sepsis, and stomatitis to the treatment of irregularities of position. The more strictly local irregularities, sometimes associated with abnormal variation in the periods of shedding and eruption of teeth, offer no difficulties to the average school dentist; complex cases involving jaw formation would be without the scope of a school clinic, but the education authority should make arrangements for their treatment at special hospitals in the larger cities and towns. Other kinds of work which might occasionally be practised justifiably at the school dental clinic include crowns for fractured incisors and obturators for cleft palate. The dentists are pleased to carry out these additional forms of work; they help to make the appointments more attractive; and anything which enlarges the scope of the duties and relieves the monotony is of advantage to the patients as well as the dentists. The school dental clinic should be fitted with a supply of hot and cold water; pump-chairs adapted to children should be installed in all whole-time clinics; electrical engines justify their expense by increased efficiency, reduction of pain, and saving of time. Every recovery room should be provided with a sink and both hot and cold water.

In London, in addition to the routine work of dental inspection and treatment, arrangements have been made for supplying at cost price tooth-brushes, tubes of tooth-paste, and small tablets of permanganate of potassium for making an antiseptic mouth-wash. A special investigation was carried out by Mr. C. Edward Wallis in South London, where some of the parents were attracted by advertisements of dental companies trading locally. The dental work of these companies was execrable; the fees charged were often in considerable excess of those charged by the properly qualified dentists.

Coöperation and Progress.

Evidence of coöperation between the Ministry of Health and the Board of Education is afforded by the egulations on the training of health visitors and of midwives which have been issued as the result of the con-ultation between these two Departments. The report s emblematic of the times, its note is progress, it bears vidence of thought which has been slowly maturing uring the lean years of high thinking and enforced ow living. Sir George Newman has a genuine gift for ducating his readers.

THE REPORT OF THE COMMITTEE UPON ANAEROBIC BACTERIA.[1]

THIS report summarises in a very readable form our present-day knowledge of most anaerobic bacteria, of he morbid conditions they may cause, and of the urgical and serum treatment which should be practised. t is the conjoint work of a committee under the chairmanship of Dr. William Bulloch, F.R.S., assisted in ertain sections by writers with special knowledge. The volume is packed with information, and should be of great help to laboratory specialists, and of first interest to the thousands of medical officers whose unhappy duty it was to treat and care for the cases of gas gangrene and tetanus during the war.

The section devoted to the clinical features of anaerobic infections of wounds is written by Dr. John Fraser; the committee are responsible for the bacteriology and biochemistry of anaerobes, for the section dealing with the experimental study of gas gangrene, for he description of toxins and antitoxins and their therapeutic use. Major W. J. Tulloch writes a special section on recent work on tetanus, Dr. A. Fleming contributes an article on the aerobic organisms found in wounds, and Dr. E. H. Kettle writes an account of he histo-pathology of gas gangrene.

The varieties of disease which anaerobic bacilli may et up in a wound vary from comparatively localised infections—gas abscess—to spreading massive œdema and the extraordinarily fulminant cases of gas gangrene. The type of disease which occurs does not apparently depend entirely on the particular species of anaerobe ound in the wound, but is affected by circumstances not yet completely unravelled. Clinically it is found hat the nature of the wound, the general condition of the wounded man, the vascular supply, and the regions and tissues affected all have some influence upon the final form of the infection; but "the fulminating type stands out in contrast to all other varieties." Whatever he form the infection takes, surgical intervention, and usually of a drastic order, is called for; this varies naturally with the extent and nature of the lesion. The detailed consideration of this aspect of the subject is given by Dr. Fraser and must be left to the reader to appreciate.

Anaerobes Found in Soil.

Of the anaerobes found in soil it appears that half-a-dozen are pathogenic to man. Of these, three have been known for many years: *Vibrion septique*, discovered in 1877 by Pasteur, *B. tetani* described by Nicolaer in 1884, and *B. welchii* by Welch in 1892. In the years before the war *Vibrion septique* was generally called *B. œdematis maligni*, a name given to the organism by Koch subsequent to the publication of Pasteur's work. There is now practically no doubt as to the identity of the organisms studied by Pasteur and Koch, though in the first two years of the war great uncertainty existed on this point.[2] The explanation appears to be that neither Pasteur nor Koch gave a sufficiently detailed description of the cultural characteristics of the organisms they worked with, and most, if not all, of the strains maintained in laboratories before the war were impure. The most common impurity present was *B. sporogenes*. This latter anaerobe is powerfully proteolytic, liquefying coagulated serum rapidly, whereas the proteolytic properties of *Vibrion septique* can be detected only by refined biochemical methods. Thus the general description of *B. œdematis maligni* (*Vibrion septique*) found in standard text-books of bacteriology is inaccurate; it is stated to be proteolytic, as tested by ordinary laboratory methods, the error being due to *B. sporogenes*. This point has now been set right by the Anaerobe Committee. The remaining three pathogenic anaerobes, derived from soil, are *B. œdematiens*, *B. fallax*, and *B. histolyticus*. They were all discovered during the war by Weinberg and Séguin, an achievement reflecting great honour on French bacteriology.

The relative frequency of occurrence of these microbes in gangrenous wounds is given by French and English observers as follows: *B. welchii* about 70 per cent.; *Vibrion septique* about 16 per cent.; *B. œdematiens*, *B. fallax*, and *B. histolyticus* the remainder (about 14 per cent.).

Cultural Reactions of the Organisms.

The description of the cultural reactions of these organisms is given in great detail and is remarkably complete. Of the large number of species of non-pathogenic soil anaerobes *B. sporogenes* (Metchnikoff) and *B. parasporogenes* (McIntosh) are the most important. These two germs are distinguished from one another by certain small cultural differences and by agglutination tests. They occur in 25 per cent. of gangrenous wounds, and probably aid the morbid processes in some way not yet exactly understood. Owing to their strong saccharolytic and proteolytic properties they produce in sugary and albuminous media an abundance of acid and gas, of ammonia and amino-acids. The acids may aid the growth of the pathogenic anaerobes directly or by reducing the resistance of the wounded man. In a more or less similar way other merely saprophytic anaerobes (*B. tertius*, *B. cochlearius*, *B. tetanomorphus*, &c.) probably contribute to the production of the gas-gangrene syndrome.

B. sporogenes is widely distributed in nature and is very resistant to heat and antiseptics; it withstands exposure to 100° C. for 45 minutes and survives eight days in 5 per cent. phenol solution. It has already been referred to as the commonest contaminator of *Vibrion septique* and other anaerobic cultures; this is due to the great tenacity to life possessed by the spores and to a phenomenon called, in the report of the Anaerobe Committee, "microbic association." By this is meant the "power of cryptic proliferation within the characters of another species without being detectable." The committee find the capacity of mutual adjustment possessed by anaerobes, and by *B. sporogenes* in particular, to lie at the root of nearly all the more serious confusions and discrepancies in the literature of this subject.

Aerobes Found in War Wounds.

In the section devoted to the aerobes found in war wounds Dr. Fleming shows that the primary infection is fæcal in origin. Thus the *Streptococcus fæcalis* is found in 38·8 per cent. of cases on admission to the casualty clearing station, whilst hæmolytic streptococci occur in only 18 per cent. After a week's sojourn in hospital the percentage of the latter type of coccus increases to 90 per cent.—that is to say, the comparatively harmless, or merely saprophytic, organism tends to disappear, whilst the pathogenic and often dangerous *Streptococcus pyogenes* appears more frequently. The same phenomenon is to be observed with respect to other organisms. Whence the source of this secondary infection? Is it by direct spread from surrounding skin or is it a hospital infection? Levaditi and Debez have brought forward interesting observations which bear upon this question. They found that 54 per cent. of the English soldiers had streptococci habitually in the epithelial squames of the skin, whilst among Belgian soldiers in rest the percentage is as low as 12. They further state that wounds of Belgian troops were less often contaminated with streptococci than were those of English troops. We have here some evidence that direct spread from the skin plays a part, but, allowing for this, the evidence is practically conclusive that the majority of cases are infected during the dressing of wounds in hospital. It is borne out by common experience of *B. pyocyaneus* infections. If a wound in a ward is infected with this chromogenic organism the other cases in the ward soon show evidence of its presence unless the most rigid precautions be taken.

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[1] Medical Research Committee, Special Report Series, No. 39. By Drs. W. Bulloch, S. R. Douglas, W. E. Gye, H. Henry, J. McIntosh, R. A. O'Brien, Miss M. Robertson, and C. G. L. Wolf.

[2] THE LANCET, 1918, i., 188.

Among many interesting observations recorded in this section reference may be made to the work of Canadian officers on the occurrence of true diphtheria bacilli in wounds. FitzGerald and Robertson reported that out of 67 cases arriving in Toronto between May 20th and June 7th, 1917, *B. diphtheriæ* was discovered in 40. This very high percentage was subsequently explained by the fact that one of the nurses who dressed wounds had a digital lesion infected by this organism. Apart from such an exceptional occurrence it has been found that 2 out of 306 wounds were infected with *B. diphtheriæ*.

The Influence of Aerobic Bacteria on the Growth of Pathogenic Anaerobes in Wounds.

This subject has been investigated by a number of observers, especially in France. In the course of experiments on the ætiology of tetanus, made as long ago as 1893, Vaillard and Rouget found that the spores of *B. tetani* when deprived of toxin by the application of heat were non-pathogenic for animals of a susceptible species, and that pathogenicity could be restored by protecting the spores against phagocytes. This it was found could be achieved by injecting other organisms along with spores or by protecting the latter by means of sand; also by inhibiting the migration of leucocytes to the site of inoculation by means of lactic acid. The general conclusion arrived at was that spores or bacilli unprotected by one or other of the above-mentioned devices are rapidly ingested by phagocytes and prevented from dividing and producing toxin. Similar experiments were made by Besson with *Vibrion septique* with the same results. The spread of the primary anaerobic infection in wounds is attributed by Tissier to the action of associated aerobic bacteria. He maintains that when the aerobes are harmless saprophytes (as they generally are for the first two or three days after the infliction of a wound) "the anaerobic infection is slow; it is more rapid when the associated bacteria belong to the pyogenic group; and it tends to become fulminating when the streptococcus is present." There is undoubtedly some truth in these general contentions, but in face of the fact that pathogenic anaerobes are constantly found in association with virulent streptococci in non-gangrenous wounds it cannot be held that pathogenic aerobes play a predominant part in the ætiology of gas gangrene. Further, experimental work carried out during the war has shown that the main conclusions of Vaillard and Besson and others are probably incorrect. Evidence has been brought forward showing that water-soluble constituents of cultivated soil play a part in the genesis of these grave infections. An account of these researches are found in the section on experimental gas gangrene.

Description of Toxins.

The general mode by which anaerobic bacteria effect pathological changes is by the production of toxins and by invasion of the tissues, the latter depending upon the former. A careful study of the toxins elaborated by these organisms has therefore been made, and is fully described in the report. Of many points of special interest one or two may be touched upon here, with the assumption that the full document may be referred to.

The general properties of these poisons are as follows: They are unstable to heat, being destroyed at 70° C. in 30 to 60 minutes; they depreciate considerably when filtered; and they are rapidly destroyed by acids.

The toxin of *B. welchii* is hæmolytic both in vivo and in vitro; it necroses muscle and causes the production of a serous œdema in the subcutaneous tissues; it is antiphagocytic. The killing dose of this toxin is very high compared with that of diphtheria and tetanus—namely, about 0·25 c.cm. *Vibrion septique* produces a toxin with very similar properties, except that when it is injected subcutaneously or intramuscularly very large doses are required to kill an animal; injected intravenously, however, the toxin kills an animal (rabbit or mouse) in a few minutes. The absence of a definite incubation period is very remarkable. The toxin of *B. œdematiens* is extremely potent; a killing dose of 0·0003 c.cm. is often observed.

All three of these toxins have antigenic properties and the antisera obtained are found to neutralise each of the poisonous qualities enumerated above. When a dose of culture of one of these organisms is mixed with an appropriate amount of antiserum, and the mixture is injected under the skin, the animal remains in good health. The serum neutralises the toxin in the culture and the bacilli, being non-pathogenic in themselves, are phagocyted and destroyed. An animal may also be protected against a lethal dose of culture by prophylactic injection of the serum, but when the serum is injected separately, and after the culture, the animal, as a rule, dies. This applies particularly to *Vibrion septique*; with *B. welchii* the interval between the injection of the culture and (later) of the serum may be several hours and protection is obtained. With *Vibrion septique* it is rare that an animal is saved by serum which is administered subcutaneously or intramuscularly even a few minutes after the culture. When, however, serum is administered intravenously its curative effect becomes evident; an animal which is already ill from the effects of an injection of a broth culture of either *B. welchii* or *Vibrion septique* may often be saved by the intravenous injection of large doses of potent antisera.

Conclusion.

The practical conclusion to be drawn from these experiments is that antigas gangrene serum must be given as early as possible, in as large doses as possible, intravenously and also subcutaneously in the region of the wound. Occasional cases of this horrible complication of injuries occur in civil practice, and the correct method of using serum ought to be widely known.

Antigas gangrene serum was not prepared on a large scale until the last year of the war, and consequently its therapeutic properties were never properly tested. The serum to be effective must be polyvalent. It must, at least, protect against *B. welchii*, *Vibrion septique*, and *B. œdematiens*. The first supplies sent to France were monovalent, and it was not until the last few months of the war that an active polyvalent serum could be produced in large quantities. The records of its use in war must be interpreted, therefore, in the light of these facts. So far as these records can be analysed they show, the committee consider, "that the results obtained in France have exceeded expectations."

The more technical parts of the book, such as the biochemical and histological section and the account of recent researches on tetanus, are too intricate to make any short summary of value. The bibliography is surely a record of completeness, and will alone render the volume indispensable to all investigators in the field of anaerobic bacteria.

TUBERCULOSIS.

Life Assurance and Tuberculosis.

IN a paper read before the Assurance Medical Society on Nov. 5th, and published in the January number of *Tubercle*, Dr. Otto May has reviewed the problem of life assurance as related to tuberculosis in the light of recent research. This has undoubtedly provided much useful material to guide the medical examiner for life assurance in his estimate of the expectation of life in any given case showing one or more of the stigmata of tuberculosis. But the discussion which followed the reading of Dr. May's paper, and which is to be resumed on Jan. 7th revealed certain divergences of opinion, as well as gaps in our knowledge of this particular problem We may, indeed, claim to have advanced our knowledge of tuberculosis since a distinguished physician a genera tion back confessed that of one thing only could he be sure—his prognosis would be wrong. But it would be presumptuous folly to argue that whereas we were blind, we now see. We are still groping. Let us take, for example, the relation of wealth to the mortality from tuberculosis. Tuberculosis is a disease from which, speaking broadly, the poor man dies and the rich man recovers. But there are no reliable data to express this difference with the necessary exactitude. Again, the relation of mental stability to tuberculosis is but imperfectly understood; we know that the mentally defective and the insane are peculiarly liable to contract fatal tuberculosis, and every sanatorium physician has good reason to endorse the aphorism—no fool ever recovered from tuberculosis; blind to his general interests he does not benefit by institutional regimen. But of the tuberculosis rate among the mentally ill-balanced or merely stupid, as compared with intelligent persons, we know little; we may have a shrewd suspicion that a well-balanced mind and a stable nervous system are of enormous importance, but we cannot at present express the significance of these factors in actuarial terms.

Dr. Hector Mackenzie, in his discussion of Dr. May's paper, referred to the much-quoted investigations by the late Dr. C. Theodore Williams, who found that the average duration of life after the outbreak of the disease was about eight years. This conclusion was arrived at by mixing shorter cases with longer ones—a process giving no clue to an intelligent discrimination of individual cases. Such an analysis is almost as misleading as an estimate of the mortality of the fevers of the enteric group investigated on the same lines. It is far from enough for the life assurance examiner merely to know that the average expectation of life for a consumptive is eight years; he wants to distinguish between the short and the long case. He may often not be able to do so at once. He has, however, a most useful guide in the findings of various sanatoriums, Midhurst in particular, which show that after the first three years the prognosis for the patient discharged from a sanatorium is comparatively good. These are the important investigations that enable the life assurance examiner, in the words of Dr. May, "to recommend for acceptance, with a moderate contingent debt, cases with a history of phthisis dating back five years, who appear free from all symptoms and signs of active disease." It may be noted that neither in Dr. May's paper nor in the discussion that followed was any direct reference made to Dr. J. Brownlee's investigations into the characteristics of various forms of tuberculosis as manifested at the different periods of life. If confirmation of his views is forthcoming (and it appears that Dr. Arne Fisher, in a recent analysis of the male tuberculosis mortality of Christiania in the period 1900–1910, endorses Dr. Brownlee's findings) we may have to alter some of our conceptions in relation to life assurance and other aspects of the tuberculosis problem. At present we still cannot tell why tuberculin achieves a few dramatic successes which punctuate, as it were, the long lists of its negative or even harmful results. We may guess, but we cannot yet be sure, that these apparently conflicting observations are the outcome of our inability to differentiate between various strains of the tubercle bacillus, and that if we can distinguish between the members of the tubercle family, as we already do between the members of the typhoid family, we shall have advanced a long way towards a surer prognosis and a more rational and specific treatment. Such a differentiation may tell us why one case terminates fatally in a few months, while another survives by half a century the first manifestations of the disease, and justifies the saying of an American physician that the secret of long life is to suffer from an incurable illness and to have learned how to take care of oneself.

It is impossible to follow this discussion of life assurance in relation to tuberculosis without being driven to the conclusion that, as matters now stand, the potential consumptive is most heavily handicapped just at a point where an equal start or a substantial handicap in his favour is much needed. So long as life assurance is a matter of private enterprise, it is obvious that the medical examiner must make the interests of his employers his first object. The medical profession has, however, duties to discharge also to the sick and to the community at large. And it is in the interests of neither that the potential consumptive should be penalised in such an important matter as life assurance. The doctrine of taking from him that hath not might in this case find some justification if, in stamping on the tuberculous, we were stamping out the disease. But the reverse principle is much nearer the truth and, quite apart from any element of philanthropy, the community should realise that, in shouldering the burden of the consumptive, it is taking a most important step towards protecting itself and eliminating the disease. Hitherto this burden has been shouldered half-heartedly, even grudgingly; the result of this attitude is evident in the candid confession of failure recently voiced by the medical adviser to the London Insurance Committee in his report on a system conspicuous both for lack of sanatoriums and of other "benefit."

Tuberculosis under the Insurance Acts.

Recent questions in Parliament have elicited from the Minister of Health some points in regard to the Government's plans in dealing with tuberculosis. Dr. Addison stated that he was not at all satisfied with the results obtained under the Insurance Acts, but to circumstances connected with the war it was fair to attribute the larger part of the incomplete success attending the measures inaugurated in 1911. Steps, he added, were now being taken to carry out the recommendations of Sir Montague Barlow's Committee; the system of administration was being overhauled, but it would take a generation to catch up. Dr. Addison thought the formation of a special department at the Ministry of Health for tuberculosis to be most undesirable.

The Cost of Tuberculosis Treatment.

The amount expended by public authorities in England and Wales on the treatment of tuberculosis during the financial year 1917–18 was approximately £1,550,000. This is the latest period for which complete figures are available. It is estimated that the expenditure during the present financial year will exceed £2,000,000. In neither case is the expenditure defrayed by loans included in the figures.

The numbers of persons who have received sanatorium benefit in England and Wales during the past five years are as follows: 1914, 31,793; 1915, 29,741; 1916, 29,850; 1917, 31,566; 1918, 35,430.

Open-air Orthopædic Hospitals.

The proposals of Sir Robert Jones and Dr. G. R. Girdlestone, of Oxford, for the establishment under the Ministry of Health of open-air country orthopædic hospitals for children suffering from rickets, infantile paralysis, and surgical tuberculosis on the model of the Baschurch and Stokes centres for crippled children, are under consideration at the Ministry. Dr. Addison described their scheme in Parliament recently as one (a very important one) of those special institutional services which greatly need development, and which are now under the direct consideration of the Consultative Councils.

Sanatorium Accommodation in East Sussex.

There are six approved sanatoriums in the county of East Sussex, including the county boroughs of Brighton, Eastbourne, and Hastings. These contain accommodation in all for 248 patients—146 men and 102 women and children. The 146 beds are all available for discharged soldiers. The need for further accommodation is being met by the purchase by the County Council of a site and buildings with a view to the provision of a new sanatorium of 120 beds.

THE John Rylands Library in Manchester is making progress with its scheme of restocking the lost library of the University of Louvain. The picture is still fresh in the minds of many, showing books, a large proportion of them German books, being thrown out of the windows in September, 1914, by the apostles of German culture. More than 21,000 volumes have now been received and catalogued in Manchester, and a first instalment of these is on its way to Belgium.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A MEETING of the General Council of King Edward's Hospital Fund for London for the purpose of granting awards was held at St. James's Palace on Dec. 16th, under the presidency of the PRINCE OF WALES. The meeting was an exceptionally important one, because, as we pointed out recently in these columns, the position of hospital finance at the present time, owing to the war, is very precarious. Recognising this, the Fund has made specially increased grants.

Lord REVELSTOKE, the honorary treasurer, said that the receipts on general account to Dec. 6th, after deducting expenses, amounted to £158,338 11*s.* 9*d.* With the help of the League of Mercy the total receipts for the year would be £180,000, and this sum, together with certain undistributed balances, would enable the Executive Committee to recommend the distribution of £230,000.

Sir WILLIAM COLLINS, on behalf of the League of Mercy, said that £17,000 would be handed over to the Fund, an advance of £1,000 on last year's figures, and £3000 on the last pre-war figures.

Report of the Distribution Committee.

The report of the Distribution Committee was presented by Sir JOHN TWEEDY, chairman of the Committee. It stated that the sum of £218,000 was available for distribution amongst the London Hospitals, as against £190,000 in 1918, an increase of £28,000, and that the number of hospitals applying for grants was 107. Of the total amount distributed £174,625 had been applied in the form of grants to maintenance, an increase of £14,375 over the corresponding total in 1918. The following grants in aid of schemes of building expenditure were recommended for renewal under the two years rule: General Lying-in Hospital, £1000 in 1917 to improvements; Hospital and Home for Sick Children, Sydenham (now South-Eastern Hospital for Children), £75 in 1915 to central heating; Queen Charlotte's Lying-in-Hospital, £1000 in 1913 and £650 in 1917 to new out-patient department; Queen's Hospital for Children, £288 12*s.* 11*d.*, balance of £1000 in 1917 to improvements in the out-patient department; St. Mary's Hospital for Women and Children, Plaistow, £1500 in 1913 and £1000 in 1917 to new nurses' home and out-patient department; Victoria Hospital, £200 in 1916 to new heating apparatus.

List of Awards.

Sir FREDERICK M. FRY, the honorary secretary, then presented the list of awards as follows. (It should be noted that the reduction or absence of a grant does not necessarily imply dissatisfaction):—

Acton Hospital, £170.

Alexandra Hospital for Children, £200.

Beckenham Cottage Hospital, £60.

Belgrave Hospital for Children, £1125.

Blackheath and Charlton Hospital, £145.

Bolingbroke Hospital, £1000.

British Hospital for Mothers and Babies, Woolwich, £1730, of which £1500 towards the building of the amalgamated hospital, in accordance with the scheme submitted to the Fund.

Canning Town Women's Settlement Hospital (late Medical Mission), £700, of which £100 to reduce debt.

Central London Ophthalmic Hospital, £550

Central London Throat and Ear Hospital, £225

Charing Cross Hospital, £4600, of which £500 to improvements.

Chelsea Hospital for Women, £2150, of which £1500 to reduce debt.

Cheyne Hospital for Sick and Incurable Children, £400, of which £50 to reduce general fund overdraft.

City of London Hospital for Diseases of the Chest (Victoria Park), £4500, of which £500 to proposed sanitary improvements, in accordance with the scheme submitted to the Fund.

City of London Maternity Hospital, £1550, of which £500 to reduce general fund debt.

Clapham Maternity Hospital, £1025, of which £100 to scheme.

Dreadnought Hospital, £3250.

East End Mothers' Lying-in Home, £850.

East Ham Hospital, £215.

East London Hospital for Children, £2750.

Elizabeth Garrett Anderson Hospital, £1400, of which £250 to the scheme for the adaptation of the adjoining premises for out-patients and nurses.

Eltham and Mottingham Cottage Hospital, £120.

Finchley Cottage Hospital, £110.

Florence Nightingale Hospital for Gentlewomen, £350, of which £100 to reduce debt.

French Hospital, £200.

General Lying-in Hospital, £1600, of which £100 to reduce debt and £1000 to scheme of rebuilding to be submitted to the Fund.

Great Northern Central Hospital, £6100, of which £1500 to new nurses' home in accordance with scheme to be submitted to the Fund.

Grosvenor Hospital for Women, £575.

Guy's Hospital, £11,000, of which £2000 to improvements in nursing accommodation, in accordance with the scheme submitted to the Fund.

Hampstead General and North-West London Hospital, £3200, of which £1500 to reduce debt.

Hendon Cottage Hospital, £30.

Hornsey Cottage Hospital, £25.

Hospital and Home for Incurable Children, Hampstead, £100, of which £50 towards provision of operating theatre, in consideration of the fact that curable cases are admitted.

Hospital for Consumpton, Brompton (including Sanatorium at Frimley), £7150.

Hospital for Diseases of the Throat, £625, of which £500 towards loss incurred by postponement of building scheme through the war. The Committee trust that the scheme will be pushed forward as rapidly as possible.

Hospital for Epilepsy and Paralysis, £2225, of which £500 to reduce debt.

Hospital for Sick Children, £4600.

Hospital for Women (Soho-square), £1750, of which £250 to reduce debt.

Hospital of St. John and St. Elizabeth, £675.

Infants Hospital, £900, of which £250 to reduce debt.

Italian Hospital, £400.

Kensington and Fulham General Hospital, £50.

Kensington Dispensary and Children's Hospital, £55.

King Edward's Memorial Hospital (Ealing), £750.

King's College Hospital, £8400, of which £5000 to reduction of debt on removal to South London, making £77,100 in all contributed by the Fund to this purpose.

Leyton, Walthamstow, and Wanstead Children's and General Hospital, £750.

London Fever Hospital, £230.

London Homœopathic Hospital, £1950, of which £250 to reduce general fund debt.

London Hospital, £13,000, of which £1000 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund.

London Lock Hospital, £4150, of which £1050 to maintenance of Harrow-road Hospital, £100 to maintenance of Dean-street Hospital, and £3000 to reconstruction, in accordance with the scheme submitted to the Fund, making £4500 granted to the scheme to date. No further grant will be made to the reconstruction until the Fund is satisfied that the appeal to the public is being actively pressed.

London Temperance Hospital, £2300

Maternity Charity and District Nurses' Home, Plaistow, £350.

Memorial Hospital, Mildmay Park, £550, of which £150 towards installation of electric light.

Metropolitan Hospital, £4500, of which £1000 to reduce debt.

Middlesex Hospital, £8400, of which £500 to reduce debt, and £900 to new nurses' accommodation in accordance with the scheme submitted to the Fund.

Middlesex Hospital Cancer Charity, £500, of which £100 to new nurses' accommodation.

Mildmay Mission Hospital, £675.

Miller General Hospital for South-East London, £4500, of which £2500 is a first grant to the extension of the hospital, in accordance with scheme to be submitted to the Fund.

Mothers' Hospital of the Salvation Army, £1000, of which £500 to new nurses' accommodation, in accordance with scheme to be submitted to the Fund.

National Hospital for Diseases of the Heart, £800, of which £400 to extension of out-patient department, in accordance with scheme to be submitted to the Fund.

National Hospital for the Paralysed and Epileptic, £4000.

Nelson Hospital (late South Wimbledon, &c.), £550.

Norwood Cottage Hospital, £450.

Paddington Green Children's Hospital, £900.

Passmore Edwards Hospital for Willesden, £250.

Passmore Edwards Hospital for Wood Green, &c., £115.

Poplar Hospital for Accidents, £250.

Prince of Wales's General Hospital, £6000, of which £3000 to reduce general fund debt.

Queen Charlotte's Lying-in Hospital, £2000, of which £500 to reduce debt, and £700 to deferred scheme of improvements.

Queen Mary's Hospital for the East End, incorporating West Ham and Eastern General Hospital, £5250, of which £1000 to nurses' home, in accordance with scheme to be submitted to the Fund.

Queen's Hospital for Children, £4500, of which £625 to extinguish debt on old building scheme, and £1000 to scheme for new out-patient department to be submitted to the Fund.

Royal Dental Hospital of London, £500.

Royal Eye Hospital, £700.

Royal Free Hospital, £5000, of which £1500 to new nurses' accommodation, in accordance with the scheme submitted to the Fund.

Royal Hospital for Diseases of the Chest (City-road), £1450.

Royal Hospital, Richmond, £450.

Royal London Ophthalmic Hospital, £2800, of which £500 to new heating apparatus.

Royal National Orthopædic Hospital, £1250.

Royal Waterloo Hospital for Children and Women, £4250, of which £2000 to new nurses' accommodation, isolation wards, and extension of out-patient department, in accordance with the scheme submitted to the Fund.

Royal Westminster Ophthalmic Hospital, £200.

St. Andrew's Hospital (Dollis Hill), £310, of which £250 to reduce building debt.

St. Columba's Hospital, £600, of which £250 to provision of balconies.

St. George's Hospital, £5000.

St. John's Hospital, Lewisham, £675.

St. Luke's Hospital for Advanced Cases, £250.

St. Mark's Hospital, £550, of which £100 to improvement in nursing accommodation.

St. Mary's Hospital, £4500.

St. Mary's Hospital for Wome and Children, Plaistow, £3150 of which £2000 to the rebuilding of the nurses' and servants quarters and out-patient department, (in accordance wit scheme to be submitted to th Fund.

St. Monica's Home Hospita £270, of which £100 to sanitar improvements.

St. Peter's Hospital for Stone £325, of which £200 to new lift.

St. Saviour's Hospital for Ladie of Limited Means (Osnaburgh street), £230.

St. Thomas's Hospital, £750 of which £2500 to improve ments, in accordance wit scheme to be submitted to th Fund.

Samaritan Free Hospital for Women, £1425.
Santa Claus Home, £60.
South-Eastern Hospital for Children (Sydenham), £660, of which £200 to central heating and laundry improvements.
South London Hospital for Women, £750.
Stoke Newington Home Hospital for Women, £120.
University College Hospital, £6800, of which £500 to improvements.
Victoria Hospital for Children, £1,700, of which £250 to central heating.
West End Hospital for Nervous Diseases, £2750, of which £2000 to removal to Regent's Park, in accordance with the scheme submitted to the Fund.
Western Ophthalmic Hospital, £175.
West London Hospital, £6150, of which £1500 to improvements, in accordance with scheme to be submitted to the Fund.
Westminster Hospital, £4800, of which £300 annual grant to acquisition of new site as agreed.
Wimbledon Hospital, £120.
Woolwich and Plumstead Cottage Hospital, £25; special grant to the Woolwich and District War Memorial Hospital Building Fund, £5000.

Report of the Convalescent Homes Committee.

Sir **WILLIAM H. BENNETT**, chairman of the Convalescent Homes Committee, presented a report which stated that the sum available for distribution amongst convalescent homes and consumption sanatoriums is £12,000, as against £10,000 in 1918. The number of applications eligible for consideration amounted to 49 from convalescent homes and 9 from consumption sanatoriums, as against 45 and 9 respectively last year. The number of beds reserved by the Fund for the use of patients in London hospitals amounts to 66 at six sanatoriums. In view of the universal demand for facilities for dealing with tuberculosis the small number of men's beds which the general hospitals appear to be able to use in this way is a matter which may require further consideration next year. On the other hand, the committee have been unable to secure enough women's beds to satisfy the demand.

List of Awards.

Mr. **J. G. GRIFFITHS**, honorary secretary, presented the list of awards recommended by the Convalescent Homes Committee.

A.—*Consumption Sanatoriums.*

Children's Sanatorium, Holt, Norfolk, £880, of which £780 in consideration of the reservation of ten children's beds during 1920 for the use of certain London hospitals.
Daneswood Sanatorium (Jewish), Woburn Sands, £460, in consideration of the reservation of four beds during 1920 for the use of certain London hospitals.
Devon and Cornwall Sanatorium, Didworthy, South Brent, £1250, of which £1150 in consideration of the reservation of ten beds during 1920 for the use of certain London hospitals.
Eversfield Chest Hospital, St. Leonards, £50.
Fairlight Sanatorium, Hastings, £100.
Kelling Sanatorium, Holt, Norfolk, £740, of which £690 in consideration of the reservation of six beds during 1920 for the use of certain London hospitals.
Mount Vernon Hospital, Northwood, £150.
National Association for the Establishment and Maintenance of Sanatoria for Workers, Benenden, Kent, £3610, of which £750 in reduction of mortgage debt and £2760 in consideration of the reservation of 24 beds during 1920 for the use of certain London hospitals.
Northamptonshire Sanatorium, Creaton, Northants, £1530, of which £1380 in consideration of the reservation of 12 beds during 1920 for the use of certain London hospitals.

B.—*Convalescent Homes.*

Beau Site Convalescent Home, Hastings, £75.
Brentwood Convalescent Home for London Children, Brentwood, £50.
Brooklands Home (Invalid Children's Aid Association), Worthing, £50.
Bushey and Bushey Heath Children's Convalescent Home, Bushey, £50.
Chelsea Hospital for Women, St. Leonards, £75, with a view to encouraging the admission without payment of patients direct from the hospital.
Children's Convalescent Home, Beaconsfield, £25.
Children's Cottage Hospital, Cold Ash, Newbury, £25, in consideration of convalescent cases.
Children's Home Hospital, Barnet, £25, in consideration of convalescent cases.
Convalescent Home for Poor Children, St. Leonards, £150.
Convalescent Police Seaside Home, Hove, £75.
E. G. Anderson Hospital (Home of Recovery), Barnet, £200.
East London Hospital for Children, Bognor, £150, of which £100 to reinstatement after use by military for non-hospital purposes.
Florence Emma Home (Invalid Children's Aid Association), Dover, £50.
Friendly Societies' Convalescent Homes, Dover and Herne Bay, £75.
Great Northern Central Hospital, Clacton, £100.
Great Northern Central Hospital, East Finchley, £100.
Highgate Convalescent Home for Children, Highgate, £50.
Home for Convalescent Children, Southsea, £50.
Jewish Convalescent Home (Children), Brighton, £75.
King's College Hospital, Hemel Hempstead, £150, the grant is made on condition that patients are admitted free direct from the hospital.
Metropolitan Convalescent Institution, Bexhill, £75.
Metropolitan Convalescent Institution (Children), Broadstairs, £75.
Metropolitan Convalescent Institution, Walton-on-Thames, £150.
Middlesex Hospital, Clacton-on-Sea, £50.
Miller Hospital Convalescent Home, Bexhill, £100.
National Hospital for the Paralysed and Epileptic, East Finchley, £150, with a view to facilitating the admission of patients without payment.
Paddington Green Children's Hospital, Slough, £125.
Poplar Hospital, Walton-on-Naze, £50.
Queen Charlotte's Lying-in Hospital, Kilburn, £75.
Queen's Hospital for Children, Bexhill, £100.
Royal Waterloo Hospital for Children and Women, Whippingham, £75.
St. Andrew's Convalescent Home, Folkestone, £100.
St. Andrew's Convalescent Hospital, Clewer, £25.
St. Luke's Home (Children), Woodley, Reading, £25, in consideration of convalescent cases.
St. Mary's Convalescent Home, Birchington, £50.
St. Mary's Home for Children, Broadstairs, £75, in consideration of convalescent cases.
St. Michael's, Westgate, £25.
Samaritan Free Hospital, Amersham, £55.
Sunshine Home, Hurstpierpoint, £25.
Surgical Home for Boys, Banstead, £25, in consideration of convalescent cases.
Tilford Convalescent Home for Children, Farnham, £50.
Victoria Home for Invalid Children, Margate, £25, in consideration of convalescent cases.
Victoria Hospital for Children, Broadstairs, £125.

The Report Adopted.

The **PRINCE OF WALES**, in moving the adoption of the reports and awards, read a letter from the King, in which his Majesty expressed his cordial approval of the grants this year being specially increased, and referred to the gift of £250,000 from the Red Cross Society and the Order of St. John, remarking that the fact that the Distribution Committee had been asked to undertake its apportionment was a testimony to public confidence in the Fund. The **LORD MAYOR** having seconded the motion it was adopted unanimously.

In referring to the arrangements of the Fund for next year his Royal Highness said that two distributions would be made, the ordinary distribution in the autumn and at another period of the year the distribution of the £250,000 from the Red Cross Society and the Order of St. John.

On the motion of Viscount **SANDHURST** a vote of thanks was accorded to the Prince of Wales, and the proceedings terminated.

ROYAL COMMISSION ON INCOME-TAX:

THE MEDICAL PROFESSION'S CASE.

THE fifth instalment of the evidence given before the Commission has now been published, and in it is found the report of the evidence of Dr. Haslip on behalf of the British Medical Association. Dr. Haslip made an excellent witness, stating things reasonably and without prolixity, and also without holding himself out as even a quasi-expert on Income-tax laws and regulations. The fact is that, when all is said and done, there are not many matters of importance which affect the medical profession, and it only, in the income-tax sphere. But there are such matters, and both for that reason, and generally, it was most fitting that there should be a representative medical practitioner in the witness chair.

Simplification of Forms and Instructions.

The first point which Dr. Haslip put forward was that the forms and instructions should be simplified, so that the ordinary practitioner may be able to deal with them with his own hand without employing an accountant or other expert. Indeed, the point was pressed further than externals, and was applied to the actual bases of taxation of different kinds of income. Dr. Haslip mentioned a number of these and, of course, it is the fact that the "statutory" or taxable income is, or may be, arrived at by summing up a number of items which, in turn, have all been ascertained on totally different footings. Thus it may be the summation of the following: (1) Ordinary professional practice, on the average of the three preceding years; (2) appointments, on the emoluments of the year of assessment, at least as regards the fixed portion; (3) fluctuating or casual profits of appointments, either on a three years' average or on last year's figures; (4) income from or value of houses, &c., not at the actual rents, but at what is called the net Sch. A assessment; (5) land in occupation, sometimes at the annual rent or value, and sometimes at double that figure, according to circumstances; (6) income from general investment at the expected income of the year of assessment; (7) war loans received without deduction at the source, and bank interest received, on the amount of the preceding year; (8) income from colonial, Indian, and foreign "securities" (bonds, mortgages, &c.) at the amount of the year of assessment; (9) from colonial, Indian, and foreign "possessions" (stocks, shares, rents) on the average of the three preceding years; but (10) if the "possessions" are of certain classes, such as shares in partnerships not controlled from this country, or interests in trust funds, then the income is to be returned on the average of the amount *brought home to this country* during the preceding three years. Of course it may be said—and it is true—that it is not often that one household has all these sources of income or anything like it. To which it may perhaps be added that if the doctor and his wife are so fortunate as to be entitled to so many sources of revenue they need not, and should not, grudge a few guineas yearly to a skilled adviser to conduct them through the maze. There is, we fear, no use attempting to deny that income-tax and super-tax are technical spheres. A physician or surgeon will no doubt hold that, even if that be so, they are on a much lower plane of professional activity than his own operations. So, perhaps, they are, but the technical difficulty remains. Our sympathies are with Dr. Haslip's aspirations, but our judgment is with Dr. Stamp, one of the most skilled, experienced, and broad-minded of official (or rather, now, ex-official) experts, when he said in evidence that to him it was pathetic to hear the cravings for simplicity when the field of operations embraces all the varieties and complications of modern social, financial, and industrial developments. The saying goes that he is a poor architect who cannot save his own fees. Every medical man knows the evil consequences which sometimes ensue on people's off-putting tendencies in calling in medical advice; he can lay the lesson to heart in the taxation sphere.

Suggested Abandonment of the Average Rule.

As regards the ordinary professional income, Dr. Haslip, speaking in a representative capacity, supported the abandonment of the average rule altogether, and taking the figures of the previous year instead. In this respect the medical profession is in accord with the great majority of witnesses, though there are dissents. The examination which followed on Dr. Haslip's statement in chief disclosed not a little misunderstanding. It was suggested that it may often be very difficult to know the amount of last year's income, for there is the disturbing element of fees earned but not yet got in. As to that Dr. Haslip gives interesting evidence: "I can speak very strongly from my own experience. What I do not receive within the first month, or two months, I would sell at a very large discount; I would take a very small amount for it." No doubt the time-limit here mentioned is intended to run from the date of sending in the note of professional services and not from the date of the attendances. It reminds one of the country monumental sculptor's remark that if he did not get his money for a tombstone within the first year after the death he had the utmost difficulty in ever seeing it at all. But, as matter of fact, this point about postponed recoveries and bad debts has not so serious a bearing, for in the case of the medical and other professions where the element of stock-in-trade does not operate, the Department freely, and as a matter of course, allows the taxpayer to elect between the two methods of making up his accounts. The one is the earnings method and the other is the cash method. The former attempts to include everything on both sides, earned and incurred, though not received or paid. The latter confines itself to cash receipts and payments only, but, of course, at the end there has to be a clearing up, and that may cause annoyance once in a way. In the course of Dr. Haslip's evidence it emerged "that in certain districts the average of money received has been accepted from doctors by surveyors of taxes. This may seem surprising, but, unless our information is wrong, it is not the exception but the rule. Of course, "average of money received" is not very accurate. What is really meant is simply that, to arrive at the three years' average, the accounts of the three preceding years are made up on a cash basis on both sides, incomings and outgoings. Needless to say, whatever method is adopted must be adhered to. Good reasons for taking the cash basis are: (1) in the opening years the fees earned might be fairly good yet after deducting outgoings, the "balance" of actual cash got in might make it rather a tight fit to maintain the establishment and pay out hard cash for tax on profits not realised; (2) ease of accounting; (3) safety; for thus there is never paid tax on an item only to find later that the item is bad.

The Allowance for Depreciation of "Plant and Machinery."

The medical profession's most distinctive income-tax claim is for an allowance for depreciation on "plant and machinery," meaning, in their case, as put forward by the British Medical Association, chiefly motor-cars and all the elaborate apparatus and machinery which are now required in doctors' laboratories and surgeries. It makes for clearness if we call this wear and tear, for depreciation is really a different matter. The present rule is that wear and tear allowances are given in trade cases only and not to any profession. What a doctor is entitled to in those respects are (1) running expenses, (2) repairs, (3) renewals. Take a car: The first cost is not allowed; neither is it to a trader. If the ca is used for, say, six years, and the doctor then dies or retires, the car may sell (though no doubt present times are exceptional) for a trifle; no tax relief can be got for this loss. If, on the othe hand, the doctor sells the car for £200 and buys anothe similar car for £800, the £600 difference is allowed as a professional expense, and it matters not, though the first car cost only £400 or £500, because cars were the cheaper. But if, owing to extended practice, the docto buys a second car, no allowance; or if he sells No. and buys a more powerful car at a correspondingl increased price, the part of the price corresponding t the extra power is additional capital, and to tha extent there is no allowance; otherwise there i an allowance as in the £600 car above stated. Th profession's claim is that there ought to be wear and tear allowance the same as to a trade This looks likely to be granted. Two arguments strongl support it. The first is the analogy of a druggist motor delivery-van. The second is the fact that, if th doctor chooses to hire his car, the whole hire is passe as a professional expense, although it includes a allowance to the owner to compensate him for wea and tear; as, indeed, for that matter, so does eve taxi or bus fare.

Suggestions Regarding Houses.

Various different suggestions are made regardi houses.

(1) That depreciation of leases should be allowed as set-off. A doctor pays, say, £8000 for the remainder the lease of a house in Harley-street, and the life of t lease is running out every year, yet there is no allo ance for that wasting nature of the asset. We have expectation that this will be altered; neither has Haslip, for he said "That is a point brought forward do not wish to press it." There are various answe The question has wide ramifications of application beyond the one profession. It is reasonable to assu that the tax element was allowed for in the pri Thus a change might result in double allowances the same thing.

(2) That there should be a fuller allowance for t portion of the house devoted to professional purpos But the allowance at present may be up to two-thi and we believe the maximum is usually passed.

(3) There is a suggestion that doctors are unde professional compulsitor to be "over-housed." T meaning is that a man finds it necessary to reside fashionable locality, and, even assuming that he uses

strictly domestic purposes a full one-third of the house space, still that accommodation is of a kind, and represents an expense, which are necessitated solely by professional considerations, and therefore there ought to be a special allowance. The same argument would apply in far reaching directions; based on truth, it none the less will probably be judged as too remote.

Separate Assessment of Partners.

Dr. Haslip then moved on to an entirely different matter—namely, that in partnership cases each partner should be separately assessed. That used to be done, but it was stopped a good many years ago. Now the firm is assessed, though the total tax is almost always arrived at after giving effect to each partner's separate tax position. That involves consideration of his (and his wife's) private income, personal abatements, family allowances, life insurance, and different rates of tax. The result is to tell each partner, more or less nearly, what is the total household income of each of the other partners, matters with which, it is obvious, he has nothing to do. This sacrifices privacy, which is the keynote of the income-tax system. Not only so, but it makes it by no means an easy matter to apportion the tax burden properly between the partners, and to press a matter of this kind is rather delicate. We have no doubt whatever that very often the tax is paid out of the firm's funds and borne by the partners in quite wrong shares under the present rule of joint charge.

The Tax Allowance for Children.

Dr. Haslip closed with an adoption of the proposals of the Board of Education with reference to the extent of the tax allowances for children. It is enough to say that these are on a very advanced scale as compared with the present figure (present maximum for any one child £40), though we do not say that the proposals exceed the actual cost of maintenance and education in the professional classes. To allow differentiation in the tax relief "values" of wives and children, according to the financial position of the household, would be a novelty in this country, and there is on the Royal Commission itself evidence of labour opposition to the idea.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Guild: Discussion on State Medical Service.

AT the annual meeting of the Medical Guild held in Edinburgh a discussion took place on the question of State Medical Service. In opening the discussion the chairman, Dr. John Playfair (Edinburgh), said that whether they liked it or not they would, there was ittle doubt, in the near future be faced with a State Medical Service. The Guild was quite ready to accept uch a service if it were to be limited to the necesitous classes only, and, indeed, they would favour uch a proposal. They feared, however, that the service proposed by the Government might be of much wider scope, and might ultimately embrace the whole ommunity, including hospitals and all other institutions connected with the health of the community. This would tend to reduce all professional activities to dead level, and would entirely abolish friendly feeling and sympathy between doctor and patient, and lead to inefficient medical attendance. It would mphasise and increase all the weaknesses and faults f the National Insurance Act.

Professor W. Russell (Edinburgh) said at present it was proposed to bring all persons with salaries up to £250 a ear into the State Insurance Service. The heads of departments were striving for more power and authority, nd to be the autocrats over a servile profession. Except the cases of the necessitous, or of a particular disease, he State had no right to interfere with the relations between man and man. The new proposal had grown ut of the Insurance Act, which was regarded, especially Scotland, as a failure. The Act was a political bribe the manual labour section of the community, and had resulted in breaking in two the medical profession. The question was one not only for the profession, but also for the general community. The Guild stood for freedom of relations between the public and the medical profession; nobody should be forced into the acceptance of such a service, but it should be open to those who wished to use it.

Dr. E. Duncan (Glasgow) said he had grave suspicions of the intention of the Government in the immediate future, and that great dangers were ahead. During the last 50 years there had been various forms of government, and we had now arrived at what was supposed to be pure democracy. Such periods invariably ended in tyranny, and now a tyranny was established in which heads of departments were doing as they liked independent of the Government and of public opinion. At present these heads were chosen from political superiors, and it did not matter whether they were competent or not. It was time the medical profession insisted on having its rights conserved, and resisted a service which would divorce the practitioner from his patient. The present system of medical practice was much more to the advantage of the public than any described by advocates of a State service.

Other speakers emphasised the importance of organisation of the profession, and the education of students and of the general public in the question.

Dr. F. Porter (Edinburgh) said he understood that the sweeping aside of the National Insurance Act was under consideration, and on his proposal a motion was carried that they should urge for the abolition of the Medical Benefit Section of the Act, but retention of the Sick Benefit Section, and doubling of the amounts paid under it.

University of Edinburgh: The New Professorship of Psychiatry.

The foundation of the new chair of psychiatry having been approved by Order of his Majesty in Council, the University Court appointed Dr. George Matthew Robertson to be the first professor of psychiatry in the University of Edinburgh. The teaching of mental diseases in the Edinburgh school was first commenced by Sir Thomas Clouston. His class, although not compulsory, was very largely attended, and some time later he was appointed lecturer on mental diseases by the University, which subject then became part of the recognised curriculum. Dr. Robertson succeeded Sir Thomas Clouston as University lecturer. The new professor graduated M.B., C.M. at Edinburgh in 1885, and later held the appointments of medical superintendent of Perth District Asylum, Murthly, and Stirling District Asylum, Larbert. More recently he was physician-superintendent of the Royal Edinburgh Asylum, Morningside, and previous to his appointment as University lecturer was lecturer on mental diseases in the school of medicine of the Royal Colleges, and in the Medical School for Women. Dr. Robertson is a Fellow of the Royal College of Physicians of Edinburgh, and delivered the Morison lectures in 1911 and 1913.

University of Glasgow: New Lectureship.

At the meeting of Glasgow University Court held on Dec. 11th it was intimated that Dr. James S. Nicoll had forwarded a gift of £5000 to the University on behalf of two donors who wished to remain anonymous. The gift was for the purpose of establishing a lectureship in electrical diagnosis and therapeutics in the University in connexion with the Western Infirmary.

Glasgow Memorial to Sir William Ramsay.

On Dec. 10th in Glasgow University there was unveiled a bronze plaque, with portrait and inscription, to the memory of Sir William Ramsay. Professor J. Henderson in offering, and Sir Donald MacAlister in accepting, the memorial paid tribute to the work and attainments of Sir William Ramsay, one of the most brilliant students of Glasgow University. The medallion is the joint work of Sir J. Burnet and Mr. G. H. Paulin. Lady Ramsay was amongst those present at the unveiling ceremony.

Dec. 29th, 1919.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Treatment of Discharged Disabled Sailors and Soldiers.

SOME 15 months ago the Irish Insurance Commission, acting as agent for the Ministry of Pensions, made arrangements with the general practitioners of Ireland for the treatment of discharged disabled sailors and soldiers. The basis of remuneration was a capitation rate of 12*s*. 6*d*. for each disabled man. As neither the Ministry of Pensions nor any other authority had available any accurate record of the number of disabled men in Ireland, the capitation rate may always have been less than it should have been. In many districts it is probable that only the disabled men actually in need of medical treatment were recorded. The capitation rate was, as applying to a class of disabled men among whom the incidence of sickness was likely to be high, something more than the rate for medical benefits as yet paid to panel doctors in Great Britain. The latter rate is now being substantially raised, and the profession in Ireland is naturally discontented that so far there has been no movement to increase their remuneration.

The Royal College of Surgeons in Ireland.

At a recent meeting of the Council of the Royal College of Surgeons, Major-General R. H. S. Sawyer was coöpted a member of Council in room of the late Mr. R. D. Purefoy. General Sawyer retired from the Army Medical Service at the end of 1917, after a distinguished career. The last appointment he held was that of D.D.M.S. at Boulogne. He has since resided in Dublin. Interest is already being taken in the election of a vice-president of the College, which is to be held next June. Two candidates are in the field—Mr. R. C. B. Maunsell and Sir W. I. de C. Wheeler. Both are surgeons to Mercer's Hospital, Dublin.

The late Surgeon-General James Gaussen MacNeece.

The recent sudden death of James Gaussen MacNeece, C.B., retired Surgeon-General of the Army Medical Service, removes an Irishman of note. Born in 1856, he was the eldest son of the late Rev. James MacNeece, M.A., Rector of Clonfeacle, Moy, co. Tyrone. Educated at the Royal School, Dungannon, he gained his medical knowledge in Dublin, where he became L.R.C.P. & S.I. in 1877. In 1878 he entered the Royal Army Medical Service, and saw active service in various expeditions. He served in the South African War, was mentioned in despatches, and gained the C.B. At the beginning of the late war he was appointed Deputy Director of Medical Services, Control Board, and was transferred afterwards to India as Director of Medical Services in that country. He was subsequently invalided home, but never completely regained health or strength from his illness.

Dec. 29th, 1919.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Canadian Red Cross in France.

BEFORE finally leaving France for Canada the Canadian Red Cross Society held a farewell banquet at which the extent of its generosity to France was for the first time fully disclosed. Canada has given two million francs to the French Red Cross and similar charities, over and above the 300,000 francs sent to the President of the Republic in aid of refugees, and numerous presents in kind. The two hospitals near Paris financed by Canada, one at Joinville-le-pont and the other in the hippodrome at St. Cloud, were among the best equipped in the district, and the eight Canadian motor ambulances were at the disposal not only of the wounded but also of women, children, and old people in the invaded areas. During the war Canada has given France upwards of 30 million francs.

The Prevention of Desertion.

Dr. Box, of Tours, has recently given an account of the work done in the creche at Tours, where many infants abandoned by their mothers are housed. Late in 1916 the Prefect of the Department decided that all women delivered in the maternity hospital should remain in the creche wards for three months at least, with free board and lodging, under the sole condition that they nurse their babies. Moreover, they receive a grant of 1.50 fr. a day for so doing. The local authority pays the hospital charges, amounting to some 2 fr. a day. During the period from Jan. 1st, 1917, to Sept. 1st, 1918, 271 women (32 married, 239 unmarried) passed through the lying-in hospital. Of the 271 babies only 4 died; 51 were abandoned to the care of others by their mothers; but in no case was any child sent away from its mother if it had been with her in the home fo more than 10 days. If this method were generally adopted in maternity homes infantile mortality would be materially reduced.

Specific Treatment of Vincent's Angina.

Dr. Capitan, employed in a military hospital, has had many cases of angina under his care. All were examined bacteriologically, and he separated those cases showing both spirilla and fusiform bacilli, the so-called Vincent's angina, and subjected them to a specific treatment From August 2nd, 1914, to June 1st, 1919, 212 such case occurred. The treatment consisted in the hypodermi injection of a solution of colloidal arsenic prepared b the director of the hospital laboratory. A single injection of 6 c.cm. into the buttock was sufficient to mee the condition, without any local treatment other tha boric or peroxide gargles. In 48 hours the ulcers ar free from organisms, and a few days after they ar completely healed. This procedure gives better result than local treatment with arsenobenzol.

Open-air Schools.

In 1918, during the bombardment of Paris, scho children were evacuated and sent to schools in th country. Near Chartres an open-air school was improvised with excellent results. After four months th average weight of the children had increased by 3 kilo and the chest measurement of about 20 of them wa larger by 8 to 10 cm. MM. Armand Delille and Ph. Wapl have just issued a pamphlet advocating the univers adoption of these schools as prophylaxis against tuberculosis. M. Delille was strengthened in his views by h experience during the war in the examination at t frontier of women and children who had lived in t invaded territory and were being repatriated fr Germany through Switzerland. Impressed by t results obtained by M. Rollier at Leysin with s cures, he decided to treat on similar lines evacuat women and children who showed definite signs of tuberculosis. He suggests in his pamphlet that the healt children of tuberculous parents, in addition to actua tuberculous but non-infectious children, should be s into the country to live in healthy peasant families. in spite of the change the lesions do not improve children should then be sent to a sanatorium sch under medical superintendence.

Dec. 26th, 1919.

The Services.

TEMPORARY COMMISSIONS IN THE INDIAN MEDICAL SERVICE.

THE Secretary of State for India announces that f qualified European medical practitioners are required temporary service with Indian troops on special rates of Applicants must be British subjects of European des and should not be more than 35 years of age. If accepte appointment they will be required to enter into a contrac serve for two years. The rates of pay will be Rs.700 per men for a lieutenant, Rs.750 per mensem for a captain. Thre more years' service as a medical officer in the Home, Colo or Indian Forces is necessary to qualify a candidate for higher rate. Officers will be provided with free pass both ways. Wives and families will be sent out at Gov ment expense in the autumn of 1920, provided that ship is available. An outfit allowance of £50 will be gra except in the case of officers who have served under the War Office or the Government of India, to whom £20 only will be issued. Further particulars and forms of application may be obtained from the Secretary, Military Department, Room 157, India Office, Whitehall, S.W. 1. Envelopes should be clearly marked in the top left-hand corner "Temporary I.M.S."

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. S. G. Butler, D.S.O., relinquishes the acting rank of Colonel on ceasing to be specially employed.

Major F. Casement, D.S.O., relinquishes the acting rank of Lieutenant-Colonel on ceasing to command a Medical Unit.

Major M. F. Grant relinquishes the acting rank of Lieutenant-Colonel.

Temp. Capt. R. McRae relinquishes the acting rank of Major.

Capt. J. C. Denvir, from T.F., to be Captain.

Capt. A. Watson, D.S.O., is seconded for service with the Egyptian Army.

Capt. E. C. Linton, from Spec. Res., to be Captain.

D. C. Smelzer to be temporary Captain.

Officers relinquishing their commissions: Temp. Major E.P.G. Causton (and retains the rank of Major). Temp. Capts. granted the rank of Major: J. S. Lloyd, V. H. Mason, M.C., G. B. Warburton. Temporary Captains retaining the rank of Captain: F. J. McCarthy, T. Readman, S. P. Pollard, L. G. Reynolds, S. Potter, W. E. Cooke, D. B. Spence, H. V. Swindale, R. L. Jones, A. G. Morris, A. F. Fraser, W. J. D. Smyth, C. C. Twort, A. R. Gunn, W. G. Gordon, J. Hewat, C. H. Philips, H. W. Garden, T. G. Evans, T. T. B. Watson, V. R. Hirsch, G. W. Beresford, J. W. Potter, V. C. W. Vickers, G. H. Sinclair, A. Murdoch, A. E. Ainscow, R. S. Morshead, M.C., W. W. Stacey, J. Dickson, M.C., T. L. Jones, R. Adam, R. K. Robertson, H. L. Attwater, J. M. Sheridan, W. Niccol, E. H. Good, V. C. James, L. G. Jacob, F. G. Beatty, V. Wallace, C. St. A. Vivian, S. G. Gordon, A. Bremner, E. J. Selby, C. W. Aikman, J. M. MacKay, M.C., T. Jones, D. Bird, C. Sherris, E. J. Stuckey, A. V. Ledger, C. Murray, R. Jamison, W. Robertson, J. N. G. Nolan, I. Hodgkinson, J. A. Thom, W. C. Stevenson (on ceasing to serve with the Home Hospitals Reserve), J. W. Brown, H. D. Matthews, H. M. Godfrey. Temp. Lieut. J. Black (and retains the rank of Lieutenant).

Lieut. (temp. Capt.) G. E. Spicer, M.C., resigns his commission.

SPECIAL RESERVE OF OFFICERS.

Capt. M. D. Vint relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

General List.—Capt. (acting Major) F. Scroggie, M.C., relinquishes the acting rank of Major on ceasing to be specially employed.

Capt. W. C. D. Hills relinquishes his commission and retains the rank of Captain.

1st Southern General Hospital: Capt. J. W. Stretton is restored to the establishment.

1st Western General Hospital: Capt. (acting Major) C. T. Holland relinquishes the acting rank of Major on ceasing to be specially employed.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. H. Davy, K.B.E., C.B., from 4th Southern General Hospital, to be Colonel.

ROYAL AIR FORCE.

Major E. C. Clements (R.A.M.C., T.F.) is granted a temporary commission as Major on seconding to the R.A.F.

The undermentioned are transferred to the unemployed list: Capts. C. J. Miner, P. C. Parr, A. Kirkhope; Lieut. W. J. S. Cameron.

Flying Officers to be Flight Lieutenants: T. J. X. Canton, P. McDiarmid.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

The usual quarterly committee meeting was held on Dec. 19th at 11, Chandos-street, Cavendish-square, W. Three grants were made in the benevolent branch for officers amounting to £290, and 14 grants in the relief branch for the rank and file amounting to £624. These funds are for the relief of widows and orphans of commissioned officers and non-commissioned officers and men of the rank and file of the Royal Army Medical Corps, Special Reserve, Territorial Force, and New Armies, and also for the relief of the children of those who have been so severely damaged in the present war that they need help for the education of children. Requests for relief should be addressed to the honorary secretary at the offices of the funds at 11, Chandos-street, Cavendish-square, W. 1.

URBAN VITAL STATISTICS.

(Week ended Dec. 20th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·8, 14·4, and 13·9 in the three preceding weeks, rose to 14·6 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·3, or 1·9 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·1 in Swindon, 7·2 in Southampton, and 7·6 in Warrington, to 20·5 in Hastings, 22·8 in Sunderland, and 23·0 in Dewsbury. The principal epidemic diseases caused 297 deaths, which corresponded to an annual rate of 0·9 per 1000, and comprised 88 from measles, 78 from diphtheria, 51 from infantile diarrhœa, 39 from whooping-cough, 35 from scarlet fever, and 6 from enteric fever. Measles caused a death-rate of 1·7 in Burnley and in Darlington, 2·4 in Preston, 2·7 in Barrow-in-Furness, and 3·3 in Barnsley; and diphtheria of 1·2 in Plymouth. The 64 deaths from influenza were 17 below the number recorded in the previous week, and included 18 in London, 4 in Leicester, and 3 each in Manchester and Salford. There were 2942 cases of scarlet fever and 1822 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2947 and 1796 respectively at the end of the previous week. The causes of 35 deaths in the 96 towns were uncertified, and included 6 in Liverpool, 5 in London, and 3 each in Birmingham and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 15·0, 15·3, and 13·5 in the three preceding weeks, fell to 13·2 per 1000. The 281 deaths in Glasgow corresponded to an annual rate of 13·1 per 1000, and included 6 from infantile diarrhœa, 5 from diphtheria, 3 from measles, and [illegible] from scarlet fever. The 86 deaths in Edinburgh were equal to a rate of 13·3 per 1000, and included 3 from diphtheria, and 1 each from measles and scarlet fever.

Irish Towns.—The 133 deaths in Dublin corresponded to an annual rate of 17·1, or 1·8 per 1000 below that recorded in the previous week, and included 1 each from whooping-cough, diphtheria, and infantile diarrhœa. The 185 deaths in Belfast were equal to a rate of 24·1 per 1000, and included 32 from measles, 4 from scarlet fever, and 1 each from enteric fever and diphtheria.

(Week ended Dec. 27th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 14·4, 13·9, and 14·6 in the three preceding weeks, fell to 12·0 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 10·6, or 4·7 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 3·5 in Eastbourne, 4·9 in Ilford, and 6·2 in Smethwick, to 20·1 in St. Helens, 20·7 in Barnsley, and 26·1 in West Hartlepool. The principal epidemic diseases caused 275 deaths, which corresponded to an annual rate of 0·9 per 1000, and comprised 87 from measles, 82 from diphtheria, 41 from infantile diarrhœa, 40 from whooping-cough, 22 from scarlet fever, and 3 from enteric fever. Measles caused a death-rate of 1·8 in Sunderland, 2·0 in Dewsbury, 2·2 in Burnley, 2·9 in Preston, and 3·3 in Barnsley; scarlet fever of 1·2 in Cardiff; and diphtheria of 2·0 in Willesden. The 43 deaths from influenza were 21 below the number registered in the previous week, and included 12 in London and 3 each in Stoke-on-Trent and Hull. There were 2873 cases of scarlet fever and 1862 of diphtheria under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, against 2942 and 1822 respectively at the end of the previous week. The causes of 30 deaths in the 96 towns were uncertified, and included 3 each in London, Birmingham, Liverpool, and Blackpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 15·3, 13·5, and 13·2 in the three preceding weeks, rose to 14·8 per 1000. The 316 deaths in Glasgow corresponded to an annual rate of 14·7 per 1000, and included 3 each from measles, diphtheria, and infantile diarrhœa, and 1 from scarlet fever. The 90 deaths in Edinburgh were equal to a rate of 13·9 per 1000, and included 3 each from measles and diphtheria and 1 from scarlet fever.

Irish Towns.—The 92 deaths in Dublin corresponded to an annual rate of 11·8, or 5·3 per 1000 below that recorded in the previous week, and included 2 each from scarlet fever, whooping-cough, and infantile diarrhœa. The 156 deaths in Belfast were equal to a rate of 20·3 per 1000, and included 19 from measles, 3 from scarlet fever, 2 each from diphtheria and infantile diarrhœa, and 1 from whooping-cough.

Obituary.

SIR WILLIAM OSLER, BART., M.D., F.R.S.,

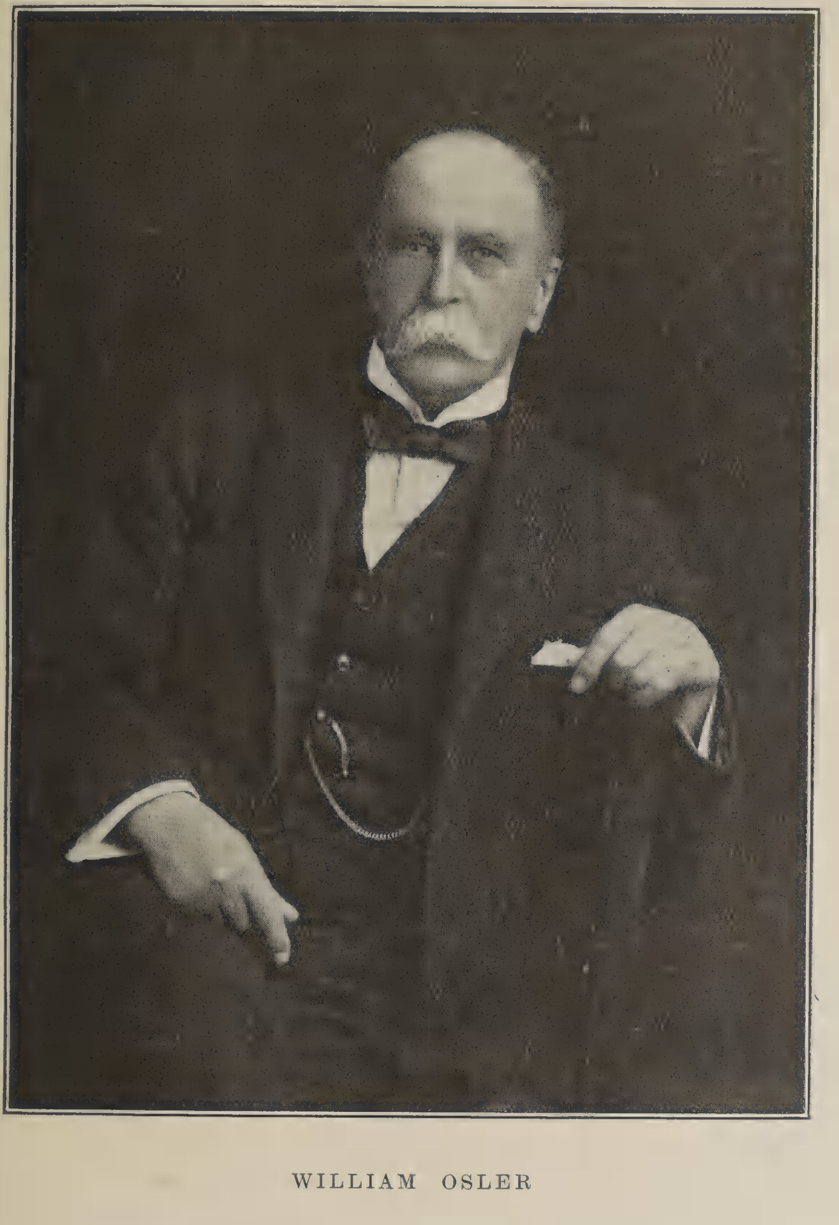
REGIUS PROFESSOR OF MEDICINE, UNIVERSITY OF OXFORD.

WE deeply regret to announce the death of Sir William Osler, Regius Professor of Medicine in the University of Oxford, which occurred on Dec. 29th at his residence, Norham Gardens, Oxford. This sad issue to a long illness had more than once been feared, as bronchitis and pneumonia of an ill-defined type, ensuing upon a chill received three months ago, refused obstinately to clear up. On the other hand, the courage and vitality of the patient, who remained young at the age of 70, flattered his advisers into hope for ultimate recovery. An operation for empyema, performed just before Christmas, promised favourable results, and for a time encouraging reports were issued. The end, however, came suddenly on Monday afternoon.

Sir William Osler was born at Bondhead, Ontario, in 1849, being the sixth son of the Rev. Featherston Osler, a Cornish clergyman who went to Canada as a missionary. The Rev. F. Osler married Miss Ellen Pickford, and their family formed a distinguished group, for two of Sir William Osler's brothers were famous lawyers, one being a judge, while another brother, Sir Edmund Osler, the President of the Dominion Bank of Canada, is a well-known financier. The mother of these sons died quite recently, a centenarian. William Osler was educated at Trinity College School and the University of Toronto, where he began his medical studies. He proceeded thence to the McGill University, Montreal, and graduated M.D. in 1872. Thence he came to London and entered at University College, where he took the Membership of the Royal College of Physicians of London, proceeding immediately to study pathology in the famous schools of Berlin, Vienna, and Leipsic. In 1874 he returned to McGill University and was elected Professor of the Institutes of Medicine, which post he held for ten years, laying thus the foundation of his reputation as clinical teacher and educational authority, and bringing to his work a scientific equipment possessed by but few of his contemporaries. Elected a Fellow of the Royal College of Physicians of London in 1884, he was appointed to deliver the Goulstonian lectures, and in dealing with the subject of malignant endocarditis he became known at once in this country as a great pathologist and clinician. These lectures, which were published in THE LANCET in March, 1885, were, in fact, a revelation of the man. The clinical studies were based on personal experience and the theories were fortified by a wide consultation of the best German, French, and English authorities. The moment the lectures appeared it was obvious that the McGill University possessed a pioneer in our science and art, and it was with great regret that Canada learned that he had accepted the invitation of the University of Pennsylvania to proceed to Philadelphia as professor of clinical medicine. This post he held for five years, and while he added to his academic reputation he also obtained a very large consulting practice.

In the United States a third opportunity now arrived, and one which was to bear still greater fruit. In 1889 he was offered the professorship of medicine at the Johns Hopkins University, Baltimore, a post which he held for 15 years, and here his conduct of the duties laid down a remarkable pattern for university medical education. The ideal at which he aimed, and which he partly carried out at Baltimore, was described many years later by himself when giving evidence before the Royal Commission on University Education in London, presided over by Lord Haldane. Before this Commission Osler pointed out that clinical medicine should and could come directly within the sphere of university training, placing medicine alongside the other great faculties, if certain hospitals were adapted to meet the demands of the scientific study of disease and the scientific training of students. He described to the Commission an ideal hospital unit, showing at the same time that such organisation would place medicine on the footing of other university schools. The unit, according to his description, comprised a professor or director having control of 60 beds and being in touch with laboratories for special research along the obvious lines of physics and physiology, bacteriology and vaccine therapy, chemistry, microscopy, and radiology. While allowing that the hospitals should have a free hand as to details, he made a point that the English system of dressers and clinical clerks should be preserved, as it was proved to have led to training of a more practical sort than could otherwise be obtained. At the Johns Hopkins University he introduced his ideas with perfect success, and to a large extent the new developments in connexion with certain of the great London hospitals are founded on the work done by Sir William Osler at Baltimore. From Baltimore, also, in 1892, there came that most popular treatise on medicine, Osler's "Principles and Practice." This book was recognised at once as a distinct acquisition to medical literature. There were at the time several books, notably those of Taylor, just issued, Roberts, and Fagge, edited by Pye-Smith, which covered the range of medical study to the satisfaction of students and of their examiners, but Osler's treatise appeared at a time when not only did modern developments require recording, but when a new spirit of approach was badly needed in response to altering central conceptions concerning disease. The observation, lucidity, and powers of arrangement, already displayed in the Goulstonian lectures, found full vent in this work. The author contrived to give the lessons to be learned from the latest pathological investigations in combination with admirable accounts of personal clinical observations, while he boldly accepted new theories of disease and new classifications in accordance with the progress of our knowledge. For the first time the student learned the real nature of pneumonia and tuberculosis, and for the first time many practitioners became aware of the real bearing on medicine exercised by modern bacteriological work. In the meantime, from the University School at Johns Hopkins there came a steady output of useful clinical discovery. Osler developed the scientific teaching of internal medicine, and did special personal work in relation to erythema multiforme, chorea, multiple telangiectasis, and polycythæmia, while at his clinic the valuable studies of W. S. Thayer and W. G. MacCallum were conducted into malarial fever, as well as the investigation of amœbic dysentery by Councilman and Lafleur, and other research work which has now found its way into the common stock of knowledge. Osler's work was justified alike by his personal share in its growth, which was rewarded by election to the Royal Society, by his encouragement of coöperators with learning and sympathy, and by the effectiveness of the educational machinery which he had devised.

In 1905 Osler, widely known on the continent of Europe, as well as throughout North America, as a consulting physician, accepted the call of the University of Oxford to the chair of the Regius Professorship of Medicine. His fame was at its zenith, and his departure from America was the signal for an extraordinary outburst of affectionate regret from the medica profession of the western world. Canadian born and o Cornish stock, with his learning reinforced at various European centres, he was a true cosmopolitan, bu America viewed his transference to Oxford as the loss o one who adorned its civilisation. He was just 55 years of age, and a better man to succeed Sir Henry Acland and Sir John Burdon-Sanderson could not possibly have been found. He was a scientific student and teacher o acknowledged rank, and he had an enormous acquaintance with men and things, great practical experience in education, and definite ideals whose working success had been proved. And those ideals were exactly i connexion with the position which a faculty of medicin ought to enjoy if it were to take its stand in university training with the other great faculties. He found a Oxford a final opportunity. By his position as physicia to the Radcliffe Infirmary he enjoyed the facilitie for combining clinical practice with scientific researc and academic exposition. His students were men fitte by preliminary education to get value from his teaching



WILLIAM OSLER

From a photograph by
Messrs. Elliott & Fry, Ltd.

and he made the medical school at Oxford a living force. He kept the Oxford medical graduates in touch with their University in a way that had not hitherto been attempted, and he used his personal qualities and his open-handed hospitality to further the scientific interest of the University and its medical school. Never was professor less professorial, never was don less donnish; yet never did the ancient University of Oxford summon to her side a man more appreciative of all that a great university stands for.

One of his eminent colleagues at the University thus writes of Osler's Oxford life: "After the strenuous hustle of American life the rest and calm of Oxford appealed to Osler, and it is good to know that the years spent here were amongst the happiest of his life. The surroundings were such as he delighted in, the society was congenial, and the duties of his office, not overburdensome, were such as to give him ample scope for his activities and free play for his broad outlook on life. Gifted with a remarkable memory and equipped with an almost limitless experience, he never seemed to forget anything he had either seen or read. He had a marvellous power of marshalling facts and getting at their essentials. Quick to realise the ever-changing needs of the times and always in the front of progress, there was a brightness and sparkle about his views which disarmed opposition. At a meeting, whenever Osler was in the chair, the proceedings were never dull, and business was usually expeditiously transacted. He had clear views as to what he wanted, and generally got his way, for his way was usually the best. Of a nature most generous and kind, he was ever mindful of the trials and sorrows of others. Many will there be who remember with affection the comforting words with which he soothed their sorely tried hearts. To those engaged in the struggle of life he was full of encouragement, wise counsel, and often substantial aid. Even of the failures in life he had always something good to say. With qualities such as these it cannot be wondered that he endeared himself to all, and we in Oxford will cherish the memory of his sympathetic personality.

His delight was in books; he was never happier than when showing you some recently acquired treasure. Much of his leisure was spent in the Bodleian, of which he was a curator, and his expert advice was of invaluable service to the delegates of the Clarendon Press. By virtue of his office he was master of the quaint old almshouses at Ewelme. Nothing gave him greater pleasure than to whisk off by motor-car a party of American visitors—there, possibly, for the first time—to introduce them to the beauties of this most picturesque of English villages; it remains as a lasting memory to many who were privileged to make the visit.

Of his work in the medical school, what can be said that is not known? He cheered us by his breezy presence and left us all the heartier with some quaint quip or jest. None the less, he was alert and observant, and oftentimes we benefited by some shrewd remark or friendly criticism.

It was around the Radcliffe Infirmary that his activities mainly centred; he was largely instrumental in getting the new clinical laboratory built there, and much of his time was devoted to the introduction of appropriate clinics in that institution. Like many others, Osler lost his only son, and the blow hit him hard, but he never winced. He said to me: 'Ours is a common sorrow; we must think of others as well as ourselves.' In consequence he immersed himself in duties innumerable, particularly in connexion with the hospitals under Canadian and American control. He was always responsive to the appeal of friends from abroad who were anxious to obtain news of their wounded sons. This often entailed long and tedious journeys, and the strain told on him. He was a worn and tired man.

When peace came, bringing with it the brighter outlook, a holiday in the Channel Islands appeared to have restored to him all the old vitality—under the genial influence of the Jersey climate, with boyish glee he had been turning cart-wheels on the sands at 70 years of age. We all hoped that 'our Regius' had still many years of active life before him. Called in consultation to Glasgow he was caught by the railway strike; he managed to travel as far south as Newcastle, and there he was held up. Anxious to get home he undertook the long motor journey to Oxford. He arrived a sick man, and despite the care and devotion of those who attended him so lovingly and long he passed away with the fading light of the afternoon of Dec. 29th."

The war made of Sir William Osler a link between the medicine of America and Canada and that of the Allies. His presidency of the Fellowship of Medicine was inevitable when the purposes of that organisation became defined, for that in medicine we have the strongest bond between nations, now an obvious proposition, was always to him a creed. As his Oxford colleague has said above, he worked heart and soul for the sick and wounded in the great struggle. His counsel and his purse were ever open to those who needed them—any need of any sort appeared to constitute a claim which was sure to be honoured—and his Oxford home, like the guest-room at the Athenæum, with him as host, became a centre of frequent and wide reunion. He enjoyed bringing men together, and not only did his guests feel a personal regard for their host, but his lovable example compelled them to think well of each other.

We need not enumerate in detail either the books which Sir William Osler wrote, or the academic distinctions which he enjoyed. Probably no man ever had the right to wear so many hoods. An Honorary Doctor of Science in five British universities, he was an LL.D. seven times over, while Berlin, Vienna, and Christiania added to the long list of English, Irish, Scottish, Canadian, and American degrees. He was created a baronet in 1911. His published work includes, in addition to the "Principles and Practice of Medicine," lectures, monographs, and addresses on many clinical manifestations and affections, several volumes of essays, of which "Æquanimitas," published in 1904, is the best known, and many biographical studies, of which those on Linacre and Servetus are admirable examples of the intimate historic style. He was also, with Dr. Thomas McCrae, the editor of a well-known System of Medicine, in the production of which leading physicians in this country and the United States and Canada coöperated.

The medical profession has lost in Sir William Osler an acknowledged head; the east and west of the Anglo-Saxon worlds have been deprived of their firmest common friend; and the individuals who mourn him to-day stand in every class not only in this country and in America, but throughout our Dependencies and the Continent of Europe.

Sir William Osler married in 1892 Grace, the daughter of John Revere, who survives him, and by whom he had an only son who predeceased him. The sympathy of the world goes out to Lady Osler.

CHARLES LOUIS TAYLOR,

LATE ASSISTANT EDITOR OF THE "BRITISH MEDICAL JOURNAL."

Charles Louis Taylor, for many years on the staff of the *British Medical Journal*, and for 20 Assistant Editor, died after a long illness on Dec. 21st, in his seventy-first year. He was the only child of Dr. Charles Taylor, of Peterhead, Aberdeenshire, who died of cholera contracted in the course of duty, at the age of 24. The mother took her infant son to France, and when he was brought again to Scotland the child could speak only French. He entered Blair's College, Aberdeen, at the age of 11, and from there, at the age of 15, went to the Scots College, Valladolid, to be educated for the priesthood. Finding that he had no vocation, he thought of entering the Indian Civil Service, but when he applied he was over age. At about this time he lived a good deal in France and this upbringing made him a considerable linguist. He had colloquial French, Spanish, and Latin, a good knowledge of Portuguese and Italian, and afterwards taught himself to read German. He entered as a medical student at University College in 1873. Though he was punctual in his attendance throughout the full curriculum and eventually, as locum-tenent, held resident posts at University College Hospital, he could never be induced to sit for any examination. Thus, though he was well read in medicine and had had considerable practical experience, he never qualified. In 1880 he became secretary to Sir Morell Mackenzie and assisted him in the preparation of the second volume, published in 1884, of his "Manual of Diseases of the Throat and Nose," of which the first volume had appeared in 1880. In the preface to the latter the author acknowledges his "deep obligation to Mr. C. Louis Taylor for his invaluable help." It was, no doubt, in reference to similar help rendered to other medical authors, so often anonymous and thus unrecognised, that he adopted for his book-plate the legend "Alas, poor ghost!"

In 1886 Taylor joined the editorial staff of the *British Medical Journal*. In 1897 he was appointed Assistant Editor, and to his duties in that capacity the remainder of his working life was wholly devoted. In the routine work of medical journalism he was accurate and painstaking almost to a fault. A misquotation or wrongly applied name really distressed him, and his own work was a model of accuracy and logical arrangement. The pleasure he found in his calling was in two directions. He was a skilful and effective controversialist, and loved nothing better than to quench an antivivisection or antivaccinist light with the cold douche of fact and common-sense. His real strength was in medical history, especially biography, in the study of which he found recreation as well as occupation. He edited the volumes published under the general title "Masters of Medicine," and made preparations to contribute a biography of Vesalius, but the series was discontinued. Most of his historical writing was published in the *British Medical Journal* without his signature, but his attainments became known to a few, and some years ago, at the instance of Sir William Osler, he was elected an honorary member of the Section of the History of Medicine of the Royal Society of Medicine. This recognition greatly pleased him, but public functions had no attraction for him. He was of a genial nature and his courteous manner quickly put a stranger at ease; he loved his work and his books, and his home life above all.

He enjoyed good general health until about seven years ago, when he had a serious illness. A successful operation by his old friend Mr. Bilton Pollard gave him a new lease of life, and he returned to work, fighting manfully against disabilities and failing energy, until his retirement in March, 1917. He married in 1882 and leaves a widow, two daughters, and a son, Dr. C. J. G. Taylor, of Nuneaton, who served throughout the war as surgeon, R.N. Reserve (Vol.).

CHARLES ROBERT WATSON, M.D. BRUX., M.R.C.S., L.R.C.P. LOND.,

SURGEON, TUNBRIDGE WELLS GENERAL HOSPITAL.

THE death of Dr. C. R. Watson, of Tunbridge Wells, occurred quietly in his sleep, the result of heart trouble, on Dec. 23rd, 1919. He was the elder son of Dr. George S. Watson, and the grandson of Dr. Trustram, both of whom had practised in Tunbridge Wells before him. Before beginning his medical education at St. George's Hospital he had been at Tonbridge School. At the hospital he was a keen clinical student, always in the wards, and always ready to discuss his cases. He held the offices of house surgeon, house physician, and obstetric assistant, and having qualified as M.R.C.S., L.R.C.P., afterwards took the M.D. degree at Brussels. Almost immediately he joined his father in the Tunbridge Wells practice, where his life work has been.

Dr. Watson's early death is a direct result of overwork during the war. In addition to double work in his practice—for his brother volunteered—and at hospital, he was surgeon to a large Red Cross hospital, a venereal clinic, a large Church of England Home, and convalescent homes for children and for officers: work which led to straining his strength very seriously. Few people realise the enormous amount of work which the civilian members of our profession have undertaken during the war. Much of this work was unremunerated and done for love of country, with determination to accept no reward or decoration. Such work was Charles Watson's.

Correspondence.

"Audi alteram partem."

THE ANTI-RELAPSE TREATMENT OF MALARIA.

To the Editor of THE LANCET.

SIR,—When Naaman the Syrian was advised to wash seven times in the Jordan in order to be recovered of his leprosy he was angry at the mere simplicity of the prescription, and apparently for the same reason many medical men still refuse to treat their cases with the very simple continuous quinine medication laid down by the malaria prophets in Israel. May I argue the case once more?

The first formula which we suggest or use at the large consultative Tropical Diseases Clinic, which was started by the Ministry of Pensions near Sloane-square on Oct. 1st last, is the following:—

To Messrs. ———
For Mr. ———
℞ Quininæ sulphatis... ... ... gr. 80.
Ac. sulph. dil.... ... ... q.s.
Aquam ... ... ℥ viii.

Solve. Half a sherryglassful (2 tablespoonfuls or one-eighth of the bottleful) every day just before breakfast without fail. The bottle to be refilled once a week for more weeks.

This solution (with pharmacological precautions, understood) is perhaps the most widely used medicine in the world, not excepting Dover's powder, and I quote the prescription merely to make the directions quite clear. Dr. Castellani reminds me that it is often called "coolies' mixture." It has been employed everywhere in warm countries since Pelletier and Caventou isolated quinine from cinchona bark in 1820.

We employ it as follows: (*a*) If at his first visit the patient complains of relapses within the last few days or weeks, or looks ill, or is a complicated case, or is apparently not to be trusted to take his medicine, we suggest or prescribe enough quinine for only one or two weeks, after which he must present himself again for examination (whether the parasites be found or not). But (*b*) if he appears to be trustworthy and not much "out of sorts," we tell him to return after four weeks, and we enter the word *three* before the two last words in the directions, so that he can get his medicine regularly from the chemist without troubling to see his doctor again in the meantime. In both cases, however, the patient is always told that if he does get a relapse in spite of the treatment he should take three doses (instead of one dose) a day just before meals for two days at least, and should see his doctor again as soon as possible.

Few such cases occur, and the patients are generally found to be much improved at the second visit. They are then given enough quinine for another month (the same prescription), after which they must report again. At this third visit they generally admit having remained quite free from relapses since the second visit, and look still better; but it is advisable to continue the medicine for yet another month if possible, making 9 to 12 weeks of 10 gr. of quinine daily. The men, who soon recognise the benefit of the daily dosage, are usually quite willing to continue it for this period. At the fourth visit I am now stopping the quinine, as a rule, or reducing it to 5 gr. a day for another month; but I explain to the patient that this may possibly involve a relapse, after which the whole treatment must be commenced again; and I request him to report immediately if such a relapse threatens. We have not yet had time to ascertain the final results but I infer from 40 years' general experience that when once a case is restored to ordinary health and vigou his infection will either be cured, or he will possibly suffer only from an occasional relapse after long intervals of six months, or a year, or more. But thi remains to be proved statistically. When I myself was infected during my malaria investigations in 1897, took quinine precisely as prescribed above for fou months (except, of course, that I took larger doses at first), and I have never had a relapse.

As shown at the malaria concentration centres, relapses may not infrequently occur during the first two or three weeks of this daily dosage, or very rarely after longer periods; but the large majority of the men improve greatly under it in a month. If, therefore, a case fails to improve within a month, it is most probable either that he is not taking his medicine (for which we have a known test), or that he is suffering from something else than malaria.

We employ the sulphate for economical reasons. It agrees with the large majority of the cases. I am now taking the medicine myself in order to keep company with my patients, and I scarcely know afterwards whether I have had a dose or not. I prefer the dosage *just* before breakfast in consequence of large personal and general experience, partly because the first mouthful of the meal removes the taste, and partly because I think the drug is most effective when given at that time and in that manner. Several patients who complained that it made them sick were, I found, taking it half an hour or more before the meal—quite another matter. When it really does not agree (as with dyspeptics) I allow half the dose before an evening meal or substitute the hydrochloride.

The single dose before breakfast is more convenient for working men than two or three smaller doses during the day. A dose of 30 gr. twice a week would probably be as effective, though not more so, but the men would not take it. On first visits most of the men have been taking quinine only when they "get fever" in doses from 5 to 30 gr. and omitting it entirely between the relapses—for which reason the said relapses occur. The thing is to persuade them to take it daily. We employ several kinds of pleasant peaceful persuasion—and the great majority of our patients are good honest men who wish to get rid of their malaria, pension or no pension. Thus I point out to them that it is bad military tactics to shell their enemies, the "germs," only when these are attacking them during a relapse; we should go on shelling them after they have been driven back to their trenches in order to exterminate the lot before they can bring up reinforcements. Another pleasantry of mine is to say, "Please give my compliments to your wife and beg her to make you take your medicine every day *whether you like it or not!*" They appreciate the situation; the wife gets the message, and the patient comes back smiling a month later—a better man.

I doubt whether quinine is as certain in tablets as in solution. For a month or a fortnight after relapses 15 gr. daily are perhaps better than 10 gr., but the latter probably suffice for the remainder of the three months' course—as was found to be the case in the two divisions brought from Salonika to France in 1918 (see THE LANCET, 1919, i., 780, where I also summarised some of the results in two Malaria Concentration Centres). The 15 gr. daily treatment is advocated in the excellent recent paper (THE LANCET, ii., 1134) by Dr. Henry Fraser —who has had a very large experience in the malaria centre on Salisbury Plain and in two malaria hospitals, and who is now a member of our clinic. I doubt whether *less* than 10 gr. a day is sufficient, judging from Lieutenant-Colonel S. P. James's results at Epsom in 1917, and other work. We tried *no* quinine between the relapses in two hospitals in 1917, with very bad results. But perhaps the body weight and other characteristics of patients ought to be more considered with reference to dosage than it has been possible to consider them hitherto.

The parasites are always searched for in Dr. Broughton Alcock's laboratory at the first visits of patients, and at subsequent visits if no improvement is shown, or if the diagnosis is doubtful. A course of quinine is sometimes advised as a precaution, even though no signs of malaria may remain. A fortnight's rest may be enjoined after a serious relapse, but the patient should gradually return to full work as he improves—idleness is the worst thing possible in chronic malaria, in hospital or out of it. Tonics, fruit, stout, laxatives, &c., are to be employed at discretion.

What is the scientific basis for this class of treatment? It has been employed under various forms since cinchona was first introduced. In military practice in India before the war six weeks was the official duration. I have always advocated four months (see my "Prevention of Malaria," Murray, second edition, p. 142). "Two months from date of the last relapse" was ordered in the Provisional Instructions for the Treatment of Malaria (War Office, August, 1917). But the most striking example—in fact, I think the most brilliant piece of malaria work during the war—was the case, just referred to, of the two Salonika divisions in France. They arrived so "rotten with malaria" that they shed a third of their men in wayside hospitals between Marseilles and Dieppe, and 100 men or more were coming to hospital every morning out of each depleted battalion. In three months almost the entire two divisions (which had gathered up their men again) were in the front firing line in France!—a result due to the vigour and ability of Lieutenant-Colonel J. Dalrymple, C.M.G., O.B.E., acting under the orders of General Sir C. Burtchaell. As the result of this experience malaria concentration centres were formed in each command in the United Kingdom, but only one month's quinine course was (officially) given in these. Comparatively few of the men from these divisions and centres are now coming to us; and I wish that the whole War Office malaria organisation could have been retained for the use of the demobilised soldiers. It therefore now remains for civilian medical practitioners to apply the same method to these.

But can we not cure the cases outright by some *therapia magna sterilisans?* I wish we could. Unfortunately, though the War Office made innumerable experiments from early in 1917 onwards, no really satisfactory result was obtained. For details the reader should study the forthcoming War Office publication, Observations on Malaria, by Medical Officers of the Army and Others (Stationery Office), the Annals of Tropical Medicine and Parasitology (Liverpool) for the last two years, and many papers in THE LANCET and other journals. We tried intravenous and intramuscular injections, heroic doses, kharsivan, and almost everything we could think of. Not one treatment provided a certain cure; and the treatments which gave the most promising results required at least a month's stay in hospital and were, I think, almost more severe than the disease. We still live in hopes; but up to the present the daily dosage described above remains the best, as it is the oldest used. If I had malaria to-day I should not dream of allowing any other "cure" to be practised on me.

Much is being written just now on treatment, but most of it applies only to the treatment of relapses. As will be seen from the "Observations," almost any reasonable quinine therapy reduces the relapse in a day or two; but our present point is that relapses ought not to be allowed to occur at all. In the great majority of cases, if a relapse occurs we may be sure that the patient has not been taking his quinine, either in sufficient doses or sufficiently frequently, or both. I quite agree with Colonel James's remarks on this point (THE LANCET, Dec. 6th, 1919, p. 1017); and many of the numerous deaths he mentions were probably due to this fact. Yet surely enough has been published on the subject.

Are we, then, to continue this anti-relapse treatment for ever? I infer that the malaria infection tends to exhaust itself and to die out more and more rapidly after the first year. When I was at the War Office I estimated that from 100,000 to 150,000 men had become infected on the Eastern fronts, but James says (p. 1016, loc. cit.) that only 14,000 patients have been notified to the Ministry of Health since March 1st. This is only half the number of Y-scheme men alone (obstinate chronic malarias), which, to my certain knowledge, have been sent home from Salonika. What has happened to the remainder? Recovered, I hope. And I trust that most of the others, except perhaps a few "wanglers," will be off the books long before this time next year.

I am, Sir, yours faithfully,

Dec. 25th, 1919. RONALD ROSS.

THE DRAFT REGULATIONS FOR 1920.

To the Editor of THE LANCET.

SIR,—Dr. J. Pereira Gray's letter in your issue of Dec. 27th, 1919, reveals him as the obstinate twelfth juryman. To maintain this attitude it is necessary either to pervert the facts or to attribute to other minds the psychological imperfections of one's own. Dr. Gray does both. By what appears to be the general opinion of those present the recent Conference of Representatives of Local Medical and Panel Committees was the most satisfactory of a considerable series of such conferences because (1) relatively full opportunity was given for the discussion of all important matters; (2) the items were as far as possible taken in what seemed to the meeting to be the order of importance; (3) after full consideration it was possible to arrive at unanimous or almost unanimous decisions to present to the Ministry of Health on behalf of the profession as represented. That Dr. Gray does not agree with these decisions does not prove that they were foolish. He should not, however, misrepresent those decisions or give, as he does, an entirely erroneous impression as to the character of the conference.

Almost every sentence in his letter which purports to be a statement of fact is either false or misleading. I quote seriatim the most important of them.

1. "The Local Medical and Panel Committees have proclaimed him"—the Minister of Health—"autocrat in medical affairs." 2. "A resolution to organise the profession to refuse service under certain contingencies was dropped as unthinkable." 3. "We agreed to negotiate with the Government for a pension scheme." 4. "When there are enough practitioners to go round, it"—the practitioner's list of insured persons—"will be limited to 2000." 5. The insurance practitioner "must place himself at the beck and call, night and day, of anyone who demands his services." 6. "If he would employ an assistant he must ...... agree to the terms the committee imposes." 7. "The patients whom he attracts ...... are not his, but belong to the State."

Not one of the above statements is true. This being the state of affairs with regard to the facts, there is no need for me to say anything to controvert the opinions which, presumably, are based upon them. Dr. Gray has, of course, a right to hold whatever opinions he chooses, but if he offers them to the public he should verify his facts, and he should refrain from attributing improper motives to the general body of his colleagues, all of whom have the honour and interests of the profession at heart to at least as great a degree as he has, I doubt not, himself.

I am, Sir, yours faithfully,
HENRY B. BRACKENBURY.

Stroud Green, N., Dec. 27th, 1919.

To the Editor of THE LANCET.

SIR,—Does Dr. Addison expect that the "general practitioner will be efficient and content" if payment under the new regulations is less than what is the general desire of the profession, especially if, under the same regulations, the Ministry of Health takes from us the proprietary right in our practices? Dr. Addison is reported by you to say that "at present no measure was available of the extent of work in treating the demobilised man." I would suggest one. If Dr. Addison, who is a qualified medical man, will only do a three months' "locum" in any large industrial centre he will soon find what the calls of the demobilised man mean to the profession. What matters it to the medical profession that the Government is committed to the increased expenditure mentioned by Dr. Addison? Would it be a satisfactory excuse for a man to refuse to pay his butcher or grocer on the ground that he had promised to buy his wife a diamond tiara or his son a Rolls Royce car? That, we can see, is monstrously absurd, and irrespective of any commitments of the Government it is to be hoped that the profession will stand out for the 13*s.* 6*d.*

I think the deputation that met the Minister ought to have dealt with the proposed theft of our practices. Why should a man who has bought his practice, or on who has struggled hard to build up his practice and ha to economise in the extreme to make ends meet durin the earlier years of his professional life—why shoul these men be compelled to "stand and deliver" at th instigation of any Government department? Even chimney sweep or a rag-and-bone man can sell th goodwill of his round. Are the medical profession to b treated as outlaws—people who have no claim to an protection?

The whole disgraceful thing is due to the comparativ fewness of our votes. We cannot turn an election, bu *we can strike* by coming off the panel. Let us unite an do so, unless we get fair remuneration and retain th proprietary right of our practices.

I am, Sir, yours faithfully,
D. FENTON, M.B., Ch.B., D.P.H.

Blackburn, Dec. 20th, 1919.

CONGENITAL DISLOCATION OF THE HIP.

To the Editor of THE LANCET.

SIR,—Mr. A. H. Tubby's note in THE LANCET c Dec. 20th, 1919, on the treatment of refractory cases c congenital dislocation of the hip raises a very importan question, and one on which the opinions of surgeon differ widely—namely, up to what age should reductio be attempted? It has been a source of some surpris to me to find how many surgeons regard age by itself a no contra-indication to attempted reduction. On th other hand, there is a large—and I am inclined to thin a larger—number of surgeons who will not operate afte a certain age is reached.

Experience seems to me to be strongly in favour c not operating upon unilateral cases after 10 years c age and bilateral after 6 years. As the age-limit i approached reduction becomes increasingly difficult an the risks proportionately greater, while the prospect c a perfect result becomes smaller. When the age-limi is exceeded the results, in my opinion, do not warran the risks, immediate and remote. I am convinced tha actual harm may result, quite apart from accident during attempted reduction, of which the ill-effects ar usually temporary. The pain and disability from whic these cases sooner or later suffer, and the expectation c which is the chief indication for operation, are, I thin attributable to osteo-arthritic changes occurring in th deformed joint. Unless a permanent anatomical reduc tion has been achieved the traumatism to which th joint has been subjected may, and in the older cases ver often does, hasten the onset of those very changes i the joint which the operation was meant to avoi Again, even though an anatomical reduction has bee obtained in a case near the age-limit, changes in th joint occur which I have been accustomed to speak c as "absorptive arthritis," and which lead to a gradua wearing away of the head and neck of the femur, an sometimes the formation of a migrating acetabulun both of which may result in gradual re-dislocation.

It is admitted by some of those who attempt reduc tion at any age that an anatomical cure in cases abov the age-limit is uncommon, but they say they obtain a "anterior reposition," with improvement in the stabilit of the joint and the gait of the patient. My exper ence of "anterior reposition" has been extremel limited—far more limited, it would seem, than that c some surgeons. If an anatomical cure does not resul the bones, as a rule, return to their former position- i.e., there is an unquestionable relapse. I venture t suggest that those who advocate treatment of thes cases after the "age-limit" has been exceeded, shoul produce their late results, so that those whose exper ence has forced them to abandon operation in the old cases may be convinced of their error.

As regards open operation, this may be resorted t with two separate and distinct objects: first, to obtai an anatomical reduction; and second, to preven "relapse" in a hip already reduced. I agree with M Tubby that the former operation should only be resorte to after the bloodless method has failed, but I cann agree with him as to the wisdom of thereby raisin the "age-limit." The younger the case that resist anipulative methods, the stronger, to my mind, is the dication for open operation. Conversely, the nearer e age-limit is approached, the greater the care ecessary before deciding to subject the patient to e extra risk of an open operation. Since Burghard mphasised the importance of the ilio-psoas, and ecommended the division of this tendon in papers ublished in 1901 and 1903, I have invariably severed as a part of the open operation for reduction of congenital dislocation. As regards the second operation, I ink this is particularly indicated in a case in which revious bloodless reduction has been accomplished, ut has been followed by relapse, and which is still oung enough to stand a good chance of a cure esulting.

The method I have adopted with success has differed om Jackson Clarke's in that the joint is not opened. he periosteum is incised parallel to and about a third f an inch above the acetabular margin, and a flap of his membrane is *roughly* rugined down till the cotyloid gament is reached and elevated from the acetabular argin. A few stitches are inserted to keep this flap urned out from the bone, and also to take in the slack the upper part of the capsule. A more certain result hould be obtained by making use of some form of bone raft. These procedures are not, in my opinion, justified t and above the age-limit, nor should either be made se of till the possibility of obtaining a satisfactory esult by means of the bloodless method has been arefully excluded.—I am, Sir, yours faithfully,

Dec. 23rd, 1919. H. A. T. FAIRBANK.

COPPER ALANIN IN INOPERABLE CANCER.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 13th, 1919, appears a etter under this title from Dr. James Donelan, referring o a case of inoperable cancer of the tongue in which e has obtained distinct palliative results by the employ-ent of copper alanin, the use of which in protozoal iseases and in inoperable cancer was suggested and its ack of toxicity in proper dosage demonstrated by me.[1]

I am glad to note that Dr. Donelan rightly does not laim a curative action, as his result in this respect orresponds with those obtained by myself and other bservers who have been sufficiently interested in the linical action of copper alanin. Mr. Aslett Baldwin, vho has been kindly making investigation on the use f copper alanin in a considerable number of cases of ancer and keeping me acquainted with the results, as not yet been able to come to any conclusion efinite enough to bring forward. It would be a great ity for false hopes to be aroused in such a matter, and may remark that the only case in which to my nowledge the use of the substance has been followed y apparent recovery has been in which copper alanin vas not employed alone but conjointly with other reatment, the effect of which has not been sufficiently nvestigated to warrant publication.

I am, Sir, yours faithfully,

J. A. SHAW-MACKENZIE, M.D. Lond.

Cumberland Mansions, W., Dec. 29th, 1919.

THE PLACE OF THE PHYSICIAN IN OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—I have read with very great interest Dr. Rayner . Batten's article in THE LANCET of Nov. 29th, and also our leading article in that of Dec. 13th. It will probably e agreed—internally if not avowedly—by most ophthal-nologists that Dr. Batten has expressed opinions and nade criticisms which are true and to the point—amely, that sufficient justice is not done by the verage ophthalmic surgeon to those numerous patients vho are distinctly in need of purely medical as opposed o surgical treatment, and that the consulting physician loes not meet the requirements. The ophthalmic urgeon can hardly be expected to keep abreast of both medicine and surgery and also to apply them both to ophthalmology, and it seems safe to state that he does not do so. In the present crowded state of the ophthalmic clinics how many of these purely medical cases receive sufficient attention from anyone concerned? One has simply to name syphilitic, tuberculous, and arterio-sclerotic conditions of the eye to call up a host of cases which have been seen and which conscience whispers have not received full attention and consideration. As you, Sir, indicate in your article, Dr. Batten's remedy may not be the best remedy, but it is clear that, by some means or other, the present system, in accordance with which very large numbers of medical cases are supervised, where not actually treated, by men who are essentially trained surgeons—often enough with no leanings towards medicine—should be amended in such a way as to place the medical eye patient attending an eye clinic in as favourable a position as his fellow-sufferer who attends the medical side of a general hospital for a disease of some other part of his body. Even in private practice the purely medical case is apt to be at a disadvantage, for the conscientious ophthalmic surgeon will refer him to a physician whose fees must be paid. Doubtless there is the family practitioner, but as he in most cases is not familiar with the ophthalmoscope, the patient is tossed about from one to the other very much to his own disadvantage. Why not therefore the physician oculist as well as the surgeon oculist? But, between the two, where does refraction come in?

I am, Sir, yours faithfully,

Bothwell by Glasgow, Dec. 22nd, 1919. ERNEST THOMSON

THE LIMITATIONS OF SCIENTIFIC THOUGHT.

To the Editor of THE LANCET.

SIR,—Dr. Harry Campbell, in his lecture on Mental Personality, in your issue of Dec. 27th, 1919, states that space "is acknowledged by all philosophers to be a mode of perception." This statement, as it stands, is inaccurate, as all philosophers have not by any means acknowledged this. Apart from the history of thought on this subject, the fact that Kant had to plead for his theory (that space is a mode of perception) that it "should gain favour as a hypothesis worth entertaining" is enough to show that eighteenth-century thought needed much conversion.

Dr. Campbell's remarks on the restriction of science to its own business are good reading, and advice on this point is always timely. I fear that Professor Karl Pearson, whose "Grammar of Science" he quotes, is one of the chief sinners in this regard, as he confuses the boundaries of science and philosophy, and writes mostly from a subjectivist standpoint, without seeming to realise that he has thrown overboard the "method of science" with which he started. Burdon Sanderson, somewhere in his essays, has the excellent remark that the physiologist can pursue philosophy if he has the talent for it, but must understand that the moment he enters the field of philosophy he leaves his tools behind him. It is unfortunate that these limitations, so well indicated by Dr. Campbell, are often ignored by men of science in their writings, the result being calculated to divert those who know, but merely to befog the unsuspicious reader, who will probably put the blame on his own intelligence.

I am, Sir, yours faithfully,

Liverpool, Dec. 28th, 1919. EDMUND HUGHES.

NEWINGTON v. HOLMAN AND WIFE.

To the Editor of THE LANCET.

SIR,—Referring to your account of this case in your issue of Dec. 20th, 1919, I am surprised that you failed to realise that, probably for the first time on record, lay opinion on a question of medical ethics and practice has overridden testimony offered by an expert and uncontradicted by any other competent witness. When I stated in court that it was the custom in our profession—in the absence of physical signs *pathognomonic* of general paralysis of the insane—to have more than one Wassermann test done before making a definite diagnosis, which involves an implicit stigma of antecedent syphilis, I was uttering not merely a pious opinion, but a fact familiar to all bacteriologists, and not likely to be disputed by any experienced physician. In omitting to verify this fact before giving his judgment Mr. Justice Sankey has—unwittingly, I am sure—created a most unfortunate precedent which he would probably be the first to deplore.

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[1] Medical Press and Circular, July 16th, 1916; Proc. Physiological ociety, Jan. 27th, 1917; Journal of Physiology, vol. li.

I am, Sir, yours faithfully,
HUGH MUNRO, M.A. Oxon., M.D. Louvain,
L.S.A. Eng.

Topsham, Devon, Dec. 28th, 1919.

MEDICAL STUDIES IN LONDON:
POST-GRADUATE TEACHING.

To the Editor of THE LANCET.

SIR,—It may seem to be an inauspicious act and one rather resembling the loud proclamation of odoriferous fish to draw attention away from the enthusiasms to the prosy subject of the difficulties that lie in the way of the institution of post-graduate teaching in London of a style and dignity worthy of the metropolis of the British Empire. But in the many letters, articles, speeches, and other forms of propaganda now prevailing the existence of these difficulties seems to be ignored or overlooked until the impression left on the mind of the outsider can only be that the London schools and hospitals are afflicted with a double dose of the native English lethargy, and have hitherto failed in an important duty through sheer laziness. Without altogether denying that we have been slack in these matters, nevertheless I propose to notice several factors in the situation which, unless they are recognised and remedied, or removed, will go far to render the best laid scheme of post-graduate teaching incapable of holding its own with those of the large continental centres, and especially with that of Vienna, where, we are told, before the war American students used to spend as much as £40,000 per annum. It is with Vienna that London proposes to compete.

Now, what are the difficulties in the situation? In Vienna, as in London, the real teaching—the teaching that counts—is in the hands of the junior staffs of the hospitals. But in Vienna these men, apart from their hospital duties, do nothing else but teach. They live and work in and for and by their hospital and their teaching. They are not allowed to carry on private practice. In a word, they are professional and whole-time teachers. It may be said, however, that such a class of medical tutors is also to be found in the British hospitals and schools. That is true. Such a class does exist here. But it is very much smaller numerically than in Germany and Austria; and, moreover, with us such men are not devoting their whole time to the training of post-graduates in one special department of medicine or surgery. They teach undergraduates, in whose hands rests their future. Or else (it may be at the same time) they occupy themselves with coaching men who are reading for the higher degrees and qualifications, such as Fellowships and Memberships of the Colleges and Doctorates of the Universities. And the work for these higher examinations is, for the most part, general medicine and surgery.

And this brings me to my second point, which is, that abroad the British system of higher qualifications in general medicine and surgery is unknown. On the continent as soon as the general qualifying examination is over specialisation can begin. If a man is going to join the specialist or consulting class of practitioner he devotes his whole time to his specialty. And in Vienna he lives by teaching it. In England specialising is usually deferred until the higher degree or qualification, or both, has been attained. Thus, to take the most familiar example in London, the English Fellowship in Surgery occupies, as a rule, several years in a man's twenties, and sometimes, indeed, it eats into his thirties before he begins seriously to specialise and to teach his specialty. Or, if he has already begun to specialise, the severe course of study necessary for the Fellowship causes an interruption in his special training. Thus the teacher in England is handicapped beside his foreign competitor in: (1) being in private practice; or (and) (2) being a tutor of undergraduates in some preliminary subject; or (and) (3) being himself deeply immersed in general reading for his own higher qualifications. I am aware that recently the universities have been showing a tendency to recognise special subjects in their higher examinations, but the colleges (in England that is) do not yet do so.

So much for the teacher, whose position could easily be improved by a wise rearrangement of examination subjects. We turn now to some other dominating factors.

In Vienna the opportunities for the foreigner to gain skill and experience in operating are very much greater than they are in England, and for two reasons: first, because there is no public (or private) opinion against allowing inexperienced men to operate on hospital patients. The ear clinics of Vienna are full of patients with facial paralysis following mastoid operations performed by foreigners. This difficulty we are proud enough to look in the face and to submit to it. No English hospital surgeon would ever wish it removed. Secondly, and this difficulty, on the other hand, could be removed, but only by legislation, the working of the Anatomy Acts, and, above all, the recent scarcity of subjects render it impossible for teaching centres to obtain bodies for operation. The deficiency will no doubt be remedied in time, but even then further facilities will be required before post-graduate training can become at all what it should be. What is needed is the power for the special hospitals and special clinics of the general hospitals to obtain bodies for the teaching of their own special operative work, and this applies particularly to the highly delicate and intricate manipulations of special surgery. And for this the Anatomy Acts themselves, I believe, would require to be amended.

It does not seem to me, however, that any of those difficulties could not be got over, but their removal is going to entail more work and more time than is generally appreciated at the moment. And yet unti they are got rid of English post-graduate teaching wil be labouring under stress.

The most urgent need is for teachers, The clinica material in London is incomparable, but it is largel running to waste for want of teachers.

I am, Sir, yours faithfully,
DAN MCKENZIE.

Wimpole-street, Cavendish-square, W., Dec. 17th, 1919.

*** The developments of post-graduate facilities i London has been the object of very hard work b competent persons during the past year. Although ou correspondent is recalling much that is familiar t readers of medical journals, his exhortations will bea fruit if they lead to a larger support of the Fellowshi of Medicine.—ED. L.

THE DIETETICS OF GESTATION:
OR ANTENATAL DIETETICS.

To the Editor of THE LANCET.

SIR,—May I outline certain considerations and indications for further research which seem to arise from th recent work on "vitamines," as set forth in th invaluable new document published by the Medica Research Committee as Special Report No. 38? I would appear that the "growth" or "antirachitic factor is furnished to the milk of mammalian mother in their diet, if at all; and in its absence therefro rickets will ensue even in breast-fed infants, as notabl in those of the wrongly fed negresses of the Columbu Hill district of New York (loc. cit., p. 88). If th breast-fed infant is to thrive, the breast itself must b properly fed.

The Growth Factor in Gestation.

So much for lactation; but what of gestation? W cannot doubt that the growth factor is as necessary f embryo and fœtus as for the infant. This assurance corroborated by the observation that in fishes the growt factor is found in the roe, and that in birds it is foun in the eggs. The developing organism, piscine or avia is endowed and provided with this essential from th first. As for insects, we must study, in respect of vitamines, the two contrasted diets one of which produces a "worker" or sterile female bee, and the other a fertile "queen." We may expect to find a vitamine factor of gametogenesis. The mammalian embryo, however, must depend, in this newly discovered particular, as in all others, upon the maternal blood—at least after the very earliest stages of segmentation. Surely these considerations open a new chapter in what we may call, according as whether we look at the present or the future generation, either the dietetics of gestation or antenatal dietetics.

Dental Caries in Pregnancy.

Two well-known facts, hitherto obscure in causation, would seem now to be capable of explanation, if we proceed to experiment on the lines which it is the purpose of this communication to suggest.

The less important of these two facts is the dental caries so common in pregnancy. The work of Mrs. Mellanby on the development of the dental enamel in puppies' teeth,[1] according to the supply of the growth factor in their diet, suggests that the dental caries of pregnancy may be associated with the demands of the fœtus upon the growth factor which it requires from the maternal blood. Evidently the production of enamel and the protection of enamel are not the same process; but if the growth factor be the antirachitic factor, if it be protective in function, defect of it may cause defective production of enamel in the one case and defective protection of already formed enamel in the other. We know that thyroid deficiency produces different results in the developing and in the fully developed organism respectively. Further, defect of the growth factor in experimental rats and in children may cause xerophthalmia, due to lessened resistance to bacterial action; and the case of dental caries may be analogous. Should we not now make very exact and statistical observation, *in re* vitamine content, upon the dietaries of those pregnant women who respectively do and do not suffer from the acute dental caries of gestation?

Alcoholism a Cause of Still-births.

The more important of the two facts which now seem nearer elucidation is the large proportion of hitherto inexplicable still-births. We have lately learnt how many still-births are due to syphilis. In view especially of the experimental work of Stockard and Papanicolaou on guinea-pigs (work which I lately had the advantage of studying in detail at first-hand in New York) I suspect maternal alcoholism of frequently causing still-births in our species as in the experimentally alcoholised guinea-pig.[2] Sir R. Welsh Branthwaite, in many official reports, has given the reproductive history of chronic inebriate women in reformatories, showing a proportion of still-births, with tendency thereto *increasing* in successive years, unlike the sequence of syphilis. Dr. W. C. Sullivan, in a paper prepared for the National Birth-rate Commission, has noted the same increasing tendency to still-births in inebriate women. But, even if and when we make due allowance for this factor, there will remain a quite extraordinary proportion of unexplained still-births—32·6 per cent. in the well-known American series, and at least 25 per cent. according to Dr. Amand Routh in evidence recently given before the National Birth-rate Commission (the possible influence of alcohol not having been considered in either estimate). May not some at least of these deaths be due to antenatal "rickets" or deficiency disease consequent upon defective feeding of the mother?

Surely, these questions can and should be answered, clinically, pathologically by further microscopic study of dead-born fœtuses, and experimentally. But, even already one notable contra-indication for practice in the dietetics of gestation may be defined. Stout and porter, so long commended for motherhood, are signally condemned, first, as we knew, because they contain the toxic ingredient, alcohol; and, second, as we did not know, because they do not contain the essential vitamines. Malt and yeast are rich in these factors, but the process of brewing totally destroys them, beer, as we brew it, being thus the most common and nationally important example of a preserved, stale, artificial, devitalised because vitamine-deprived "food." Whether the alcohol or the high temperature involved in brewing destroys the vitamines—or dietary ferments, or trophozymes, as should we not call them?—is a subsidiary but not unimportant question.

Conclusion.

The conclusion is that we must make further experiment upon the dietary of gravid mammals. In 1906 I introduced the term "racial poison," now in general use, for such agents as lead and alcohol, which produce the germ-cell poisoning, or "blastophthoria" of Forel, or intoxicate the embryo or fœtus when ingested by the pregnant woman or other mammal. But it would now appear that we have to reckon with antenatal deficiency disease as well as with germinal or antenatal intoxication. My friend and teacher, Dr. J. W. Ballantyne, discussing the pathological condition of certain fœtuses, wrote as follows in 1902: "At the present time the cause of the dystrophy which has been described above is unknown. It may be guessed that the conditions which produce rickets in post-natal life are active in a modified form or in a different degree here."[3] I shall be honoured if he is able to attach any importance to my present suggestions for testing his views; and perhaps to amplify his pages on diet in his volume on "Expectant Motherhood," published as recently as 1914.

The recent experience of the Zoological Gardens in respect of pregnant animals under war restrictions of food may furnish some data worthy of correlation with future researches by the Antenatal Investigation Committee of the Medical Research Committee, and elsewhere on the lines here suggested; and the dietetics of expectant motherhood, hitherto exploited mainly by superstitions about beer and by quackery about the determination of sex, may attain a new and effective importance in the genesis of a healthy race.

I am, Sir, yours faithfully,

C. W. SALEEBY, M.D., F.Z.S., F.R.S.E.

Royal Institution, W., Dec. 20th, 1919.

Addendum, Dec. 30th.—May I add two notes? 1. At our own Zoological Gardens the view is suggested that the Polar bears, Sam and Barbara, failed to breed during the war, though they always bred before and have done so again this year, because of the deficiency of fat (? of "fat-soluble A") in their diet. 2. A Scottish correspondent tells me how its mother feeds the King Penguin chicken, the first ever raised in captivity, at the gardens of the Scottish Zoological Society: "The mother penguin lives entirely on fish and feeds its offspring by the regurgitation of the digested fish, and its transference from her own beak to the beak and down the throat of the chicken. The interesting point is that, up to the hatching of the egg, the mother accepted any kind of fish as food, but since she has had to feed her chicken she declines all fish except *herrings*. You will remember that herrings are specially rich in 'fat-soluble A.' Query: Does the mother penguin know more about vitamines than the human mother?" This query raises the profound question of the hazardous supersession of ready-made finite animal instinct by ignorant, teachable, infinite human intelligence; but the fact of natural history here recorded is fascinating.

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[1] THE LANCET, Dec. 7th, 1918.

[2] For summary of this work see "Alcohol: Its Action on the Human Organism," Report of Committee appointed by the Central Control Board (Liquor Traffic), H.M. Stationery Office, Kingsway; and for greater detail, the new edition, now in the press, of Horsley and Sturge's "Alcohol and the Human Body," Macmillan.

[3] "Antenatal Pathology and Hygiene," vol. ii., p. 346.

UNIVERSITY OF PARIS: FACULTY OF MEDICINE.—A revision course on the nervous sequels of the war, touching on diagnosis, prognosis, and therapy, has been arranged by Professors M. A. Gilbert and M. Maurice Villaret at the medical clinic of the Hotel-Dieu from Monday, Jan. 26th to Saturday, Feb. 14th. Thirty-six practical demonstrations will be given by the professors and ten other lecturers. Foreign doctors will be admitted on application to the Secretariat of the Faculty.

Medical News.

UNIVERSITY OF EDINBURGH.—The annual report for 1918–19 records 1683 students in the Faculty of Medicine, 1310 men and 373 women, being an increase of 49 upon the number of women in the previous session. The nationality of these students is given as follows: Scotland, 948; England and Wales, 298; Ireland, 42; India, 53; Colonies, 296; Foreign, 46. The report shows that the following medical degrees were conferred: M.B., Ch.B., 95; M.D., 30; Ch.M. 1. Three new chairs in medicine have been founded: Chemistry in relation to medicine (Dr. George Barger), Therapeutics (Lieutenant-Colonel J. C. Meakins), and Psychiatry (Dr. G. M. Robertson). The chair in psychiatry was endowed by the managers of the Royal Edinburgh Asylum. A diploma in public health has been instituted. Sir Harold J. Styles has been appointed to succeed Professor F. M. Caird in the chair of clinical surgery, and Dr. F. M. Boyd to succeed Professor W. Russell in the Moncrieff Arnott chair of clinical medicine. Dr. D. Chalmers Watson and Dr. Edwin Bramwell have been appointed senior lecturers in clinical medicine, Mr. A. A. Scot Skirving, senior lecturer in clinical surgery, and Dr. D. Murray Lyon, lecturer in practical pathology. Of outgoing appointments, Dr. Harold Pringle has gone as professor of physiology to Trinity College, Dublin, and Dr. John Tait to the same position at McGill University. Grants and bequests during the year included an anonymous gift of £10,000 to endow a lectureship in orthopædics, and the Leslie gold medal in medicine.

At the graduation ceremonial held on Dec. 19th the following degrees were conferred:—

Doctor of Medicine.

Charles Edward Blair, Alexander Bremner, *William Francis Christie, Mary Olivia Fergusson, Joseph Geoghegan, David Alexander Ross Haddon, Sydney Herbert Hall, *Archer Hosking, Spencer Jackson, William Prideaux Selby Johnson, James Henry Kerr, Muriel Hamilton Kerr, Wilfrid M'Farlane, *William Keverall M'Intyre, Daniel M'Kelvey, *Robert Morison, William Tyrrell Patterson, *Kerr Simpson, and †Francis Hugh Stewart.

* Commended for thesis. † Highly commended for thesis.

Bachelor of Medicine and Bachelor of Surgery.

Ahmed Fahmi Abbassi, George Sandwith Bainbridge, Leonard van Renen Becker, Gladys Annie Adeline Boyd, James Godfrey Lyon Brown, Donald Arthur Cadman, Margaret Steele Caskie, Norman Henry Gustave Cloete, Alexander Younger Peattie Cochrane, Walter Hugh Critien, Dorothy Grace Davidson, Andrew Weir Davison (first-class honours), Herbert Joseph Alexander Dingwall, Henry Reginald Dodson, Norman M'Omish Dott, Evelyn Winifred Annie Dunderdale, Alexander Ralph Erskine, Millicent Fox, Gurdial Singh Gill, Alice Marian Graham, James Alphonsus Hennessy, William Augustine Hennessy, Ralph Allan Sarjeant Hoyte, Alexander Joe, Reginald Noel Johnson, Jacob Idzinga Kuit, John Learmont, Arnold Roland M'Lean, Jane Stewart M'Phail, William Malcolm MacPhail, Alexander Murray MacRae, Douglas Alexander Miller (second-class honours), Luiz Edmund Miller, Helen Morison, Georgina Isabella Blair Nichol, Emmanuel George Hamilton Payne, Donald Rankin, Edowo Awunor Renner, William Beattie Ross, Janet Craig Rugg, Muriel Sellers, Arnold Hoseason Shennan, Alexander Macdonald Simson, Shem Stein, Hugh William Young Taylor, Thomas Robert Rushton Todd, Vera Cecil Veitch, George Richard Simon Walles, David Tweedy Watt.

Diploma in Tropical Medicine and Hygiene.

Francis George Macnaughton.

UNIVERSITY OF ST. ANDREWS.—At recent examinations the following candidates were successful:—

Final Examination for Degrees of M.B., Ch.B.

Mildred Clark, Andrewina Laird, and Florence Braithwaite Mason.

Diploma in Dentistry.

Dental Anatomy.—Frederick Leonard Keith.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE.—At examinations held recently the following candidates were successful:—

Final Medical Examination.

Part I., Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Pathology.—Daniel de Bruijn, David John Browne, and Dorothy Alice Daly (passed on high marks), Philip Jabkovitz, Rev. Edward Gordon Campbell, James Carlisle Davis, Mary Horan, Frederik Wynand Pienaar, Frederick William Shegog, Patrick Ryan, Nora Griffith, Cecil Samuel Wilson, Robert Ruckley Baker, and Elinor Dorothy Stopford.

Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene.—James Daly Leahy, William Allen Murphy, Robert Henry Joseph Mulhall Corbet, Anthony Divir Ward, George Septimus Moran, John Mervyn Semple, James Robertson Wills, Richard Wood Power, and Alfred John Beckett.

Pathology (in completion).—John Carson Brennan, Richard Victor Dowse, Henry Allman Lavelle, and Charles William Parr.

Part II., Midwifery (B.A.O.).—Eric Henry Cooke Allen and Olive Baile (passed on high marks), Wonter de Vos Scholtz, Essie Stuart Smyth, John Henry Brenell Crosbie and Johannes Philippus de Villiers (equal), William Bernard Joseph Pemberton, Salmon Louis Feldman and Joseph Ballantyne Maguire (equal), Edward Haslett Frazer, William Burton Fox, William Theodore Micks, Becher Fitzjames Haythornthwaite, Cecil Emrys McQuade, and Joseph Hirschmann.

Surgery (B.Ch.).—Leonard Abrahamson and John Gerard Holmes (passed on high marks), Thomas Donald Gordon, Charles John de Vere Shortt, Henry Allman Lavelle, Doris Louisa Graham, William Andrew Byrn and Richard Esmonde Murphy (equal), Jessie Gilbert, Johan Frederik Wicht, Maurice Nurock, Richard William Shaw, Arthur Isaac Steyn, Samuel John Laverty, Harris Cohen, and Athanas Blagoff.

Medicine (M.B.)—Leonard Abrahamson and Frederick William Robertson (passed on high marks), Francis Victor Small, John Gerard Holmes, Wonter de Vos Scholtz, William Joseph Hogan, Thomas Donald Gordon and Johan Frederik Wicht (equal), Henry Alfred Burridge, Joseph Hirschmann, Richard William Shaw, Richard Counihan, Moira Mary Brown, John Richard Waugh, William Andrew Byrn and Harris Cohen (equal), Charles John de Vere Shortt, Frederick W. Godbey, and Thomas Madill.

Diploma in Public Health.

Part I., Chemistry, Bacteriology, Physics, and Meteorology.—Victor Millington Synge, Robert Ernest Wright, Gerald Gordon Paul Beckett, Nicholas Hopkins Henry Haskins, George Francis Innes Harkness, William Henry Sutcliffe, John Stuart Dockrill, and George Oliver Fairtlough Alley.

Part II., Sanitary Engineering, Hygiene, Epidemiology, Vital Statistics, Public Health Law, Sanitary Inspection and Report.—Victor Millington Synge, Matthew McKnight, Robert Ernest Wright, Gerald Gordon Paul Beckett, Nicholas Hopkins Henry Haskins.

Diploma in Gynæcology and Obstetrics.

Roy William Chambers.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following candidates passed the examination of this school at the termination of the autumn session:—

J. T. Duncan, W. G. Seymour, M. E. Barnes, C. C. Chesterman, E. C. Girling, M. Bequaert, R. Calleja, A. Kidd, E. S. Johnson, H. Lillie, G. F. Scuddar, W. Dawson, W. F. Hume, and G. M. Heydon (the foregoing passed with distinction); L. N. Lee, A. N. Bose, G. Chesney, R. Chalmers, J. H. Thomson, W. R. Young, E. C. Spaar, H. M. Pope, A. G. Fergus, J. Boodoosingh, P. F. Nunan, H. W. Webb, R. C. Briscoe, A. J. Galustian, T. D. Nair, P. W. Barnden, D. P. Jarjasingha, J. I. A. Sorensen, and N. Cheua.

UNIVERSITY OF LONDON.—A recent issue of the *London University Gazette* states that from the present time until a date to be fixed later by the Senate external students who have been debarred from presenting themselves for examinations for medical degrees by service under the War Office, or Admiralty, or by hospital service in connexion with the war, or by other approved service in connexion with national defence, will be: (1) permitted to enter at the First Examination for medical degrees in either (*a*) Inorganic Chemistry and Physics, or (*b*) General Biology, subject to the approval of the External Council; (2) credited with any subject in which they pass at the First Examination for medical degrees or Second Examination for medical degrees, Part II.; (3) permitted, if they fail in Forensic Medicine only in Group I. of the Third Examination for medical degrees, to present themselves for re-examination in that subject only in order to complete the examination in Group I., provided that they comply with the regulations in all other respects.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Dec. 18th, 1919, with Sir Francis H. Champneys in the chair.—A letter was considered from Dr. R. P. Ranken Lyle, on behalf of the Newcastle Maternity Hospital, stating that owing to the great increase in the number of medical students in Newcastle and nurses at the maternity hospital, there is great difficulty in finding cases for all, and asking if the Board will consent to a case counting for a probationer midwife as well [illegible] for a medical student, and further stating that the medical officer of health for Newcastle would greatly approve of this concession being granted. The Board directed that Dr. Ranken Lyle be informed that the Board cannot see its way to the alteration which he suggests, as it would lower the standard of the training of midwives. The Board has no duties with regard to the training of medical students.—Letters were considered from the superintendent of the West Riding Nursing Association and the matron of the Ladies' Benevolent Institution, Chester, complaining of the treatment of candidates from those institutions who attended the Board's examination at Manchester in November last, and drawing attention to the views of the examiners at that centre with regard to the treatment of ante-partum hæmorrhage.—The Board also considered a letter on the same subject from the approved Teachers Subcommittee of the Midwives' Institute. The Board directed that every examiner be reminded that the correctness of any particular treatment cannot be determined by the private opinion of each examiner, but that the teaching of responsible authorities must be accepted.—A letter was considered from the secretary of the medical board of the Birmingham Maternity Hospital, again requesting the Board to receive a deputation from that hospital on the question of holding six examinations yearly at the Birmingham centre, and a further letter setting out the reasons for holding six examinations annually. The Board directed that the secretary communicate with the various approved institutions and midwives for their views on a scheme proposed by the Board.—A letter was considered from the secretary of the Central Midwives Board for Ireland suggesting an amendment of the form of having attended a course of lectures—Rule C.1 (1) (c) (Form IV. in Schedule to Rules)—with a view to allowing a course of 20 lectures to be delivered by more than one lecturer if necessary. The Board has always considered that it is best that the lectures should be delivered by one person. Its practice has been to accept the signature of more than one person in exceptional cases, and it has found this arrangement to work satisfactorily.

A special meeting of the Board was held on the same date, with Sir Francis Champneys in the chair. Three midwives were struck off the Roll, the following charges, amongst others, having been brought forward :—

> Being in attendance at a confinement, and the patient suffering from illness on or about the third day, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 20; she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14; the midwife did not on each occasion when attending the patient wear a clean dress of washable material, and over it a clean washable apron or overall, as required by Rule E. 2; and she neglected to wash the patient's external parts with soap and water, and to swab them with an efficient antiseptic solution, as required by Rule E. 8. Medical aid having been sought for a patient, the midwife neglected to notify the local supervising authority thereof as required by Rule E. 22 (1) (a). Being in attendance at a confinement and the child suffering from inflammation of and discharge from the eyes on or about the fourth day, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5). A midwife persistently neglected to notify the local supervising authority in cases where, pursuant to Rule E. 20, medical aid had been sought, in accordance with the provisions of Rule E. 22 (1) (a), and she did not on each occasion when attending her patients carry with her the appliances and antiseptics prescribed by Rule E. 3.

FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—The regular monthly meeting of the executive committee of the Federation was held at 11, Chandos-street, W., on Dec. 30th, 1919, Sir Malcolm Morris in the chair. It was reported by the general secretary that the following medical Members of Parliament, in addition to those previously announced, had accepted seats on the council of the Federation: Captain W. E. Elliot and Dr. B. F. P. McDonald; so that out of the nine medical Members of Parliament (excluding Cabinet Ministers) six have now joined the Federation. The recent return of Lieutenant-Colonel F. E. Fremantle brings the number up to seven. The following additional societies have definitely joined since the last meeting of the committee: National Council for Combating Venereal Diseases, College of Nursing Limited, Association of Public Vaccinators of England and Wales, Medico-Psychological Association, Association of Panel Committees, Pharmaceutical Society of Great Britain, and British Science Guild. After full consideration by the executive committee of the Federation it was decided that the first step in giving effect to the resolutions of the conference held on Dec. 12th should be to approach the Minister of Health and endeavour to obtain his support on the broad principles adopted. Dr. Addison has, therefore, been asked to receive a deputation at an early date.

PROPOSED NEW HOSPITAL FOR LOWESTOFT.—From the medical report submitted to the annual meeting of the Lowestoft Hospital, Suffolk, on Dec. 16th, it appeared that during the year ending Oct. 31st, 1919, there had been 326 admissions of in-patients, 1184 out-patients, 1306 minor casualties, and 6690 attendances at the hospital under the War Pensions Scheme. The balance sheet showed an adverse balance for the year of £72 2*s.* 7*d.* in spite of a substantial increase of annual subscriptions. The cost per head per day for the maintenance of the patients and staff was 1*s.* 0¾*d.*, a moderate figure, which reflects credit on the administrative staff. A conference of medical men of the town and district was held recently, and a unanimous opinion was expressed that a new hospital on the block principle, built on a larger site, was essential in the interests of the town and district. Lowestoft is shortly to have a war memorial and the committee hope that the scheme will include an up-to-date hospital, worthy of those in whose memory it is to be erected, and adequate for the needs of the town and district it is intended to serve. The Red Cross Society has promised to give £8000, conditional on the money being applied towards the erection of a new hospital, and of the amount subscribed to the local War Memorial Fund £9500 has been earmarked for the proposed hospital.

AT a meeting of the Chester and North Wales Medical Society held on Dec. 19th, 1919, a resolution was unanimously passed that on and after Jan. 1st, 1920, the fees payable for medical examinations and reports in the case of life policies will be as under, viz :—For policies up to £100, 10*s.* 6*d.*; for policies over £100 and up to £200, 1 guinea; for policies over £200, 2 guineas.

THE VOLUNTARY HOSPITAL PRINCIPLE.—Speaking at the half-yearly meeting of the Yarmouth Hospital on Dec. 18th Dr. Raymond Shaw, the senior surgeon, said that the day had long gone by when the hospital could rightly be considered as a place for the treatment of poor patients only. Some modification of the system in the direction of admitting paying patients at the rate of one, two, or three guineas a week would have to be considered to meet the case of those unable to afford operations at home or at a private nursing establishment. This course was already adopted abroad and in the colonies, as well as in some London hospitals, and he foresaw its extension to provincial hospitals with advantage to everyone concerned.

ROYAL INSTITUTE OF PUBLIC HEALTH: CONGRESS IN BRUSSELS.—A letter has been sent to local authorities inviting them to appoint delegates to the forthcoming Brussels congress. The fee for each delegate is 1 guinea, which payment includes all the privileges of the congress, and on receipt of the names of the delegates appointed full information respecting the meeting (including travelling and hotel accommodation) will be sent to them. It is to be hoped that advantage will be taken of the opportunity to acquire knowledge of the public health administration of a country other than our own, more especially as the various government departments of Belgium have promised every support to secure the success of the meeting. The congress will be under the patronage of H.M. the King of the Belgians, and will be conducted in sections, each of which has both a Belgian and a British president. The sections comprise :—(1) State Medicine; (2) Naval, Military, Tropical, and Colonial; (3) Municipal Hygiene; (4) Industrial Hygiene: (5) Hygiene and Women's Work; (6) Bacteriology and Chemistry. The honorary secretaries of the congress are Professor Slosse, secretary to the Faculty of Medicine of the University of Brussels; Professor René Sand, secretary to the Academical Council attached to the Faculty of Medicine; Professor E. W. Hope, medical officer of health for the city of Liverpool; and Dr. T. N. Kelynack. The meetings will be held in the buildings of the University of Brussels, Leopold Park, from May 20th to May 24th, 1920.

AN IMPORTANT INSURANCE COMMITTEE DECISION.—An appeal recently undertaken by the London and Counties Medical Protection Society for one of its members against a decision of the East Sussex Insurance Committee raised a point of importance to panel practitioners. Under Article 21, Subsection 1, of the Medical Benefit Regulations an insured person desiring to select a practitioner is required to make application as the Committee, with the approval of the Commissioners, may require. In this case the manner of making application required by the Insurance Committee was set out thus:

> In any case in which an application from an insured person to be placed on the list of a practitioner, either by the presentation of a medical card or in such other manner as the Insurance Committee shall from time to time prescribe, is rejected by the practitioner, it shall be the duty of the practitioner (*a*) if the applicant is in urgent need of treatment to provide such treatment as the case may require, and (*b*) in every case to inquire whether the insured person wishes to apply to another practitioner on the panel or whether he wishes to apply to be assigned by the Committee to a practitioner on the panel.

In the case under consideration the insured person had caused to be posted an application to be placed upon the doctor's panel, which had, in fact, never come to his notice, and had consequently neither been accepted nor rejected by him. When the patient required medical attendance and sent for the doctor the application was then discovered for the first time by the doctor, who refused to attend on the ground that the patient was not in his area. The question arose as to whether the posting of the application by an insured person to a doctor constituted a "presentation" within the meaning of the article quoted. It was argued on behalf of the doctor that the word "present" in its natural and ordinary meaning meant a presentation in person, and that a construction which would enable applications to be made by post would not only place a serious additional burden of clerical work on insurance doctors, but would lead to a number of administrative difficulties.

After a lengthy discussion the Insurance Committee found in favour of the doctor on appeal, and agreed that the presentation of an application by an insured person to be placed upon a doctor's panel must be made either by the applicant in person or at least by an agent in the position to answer such inquiries as the doctor might require to put to him, as well as to convey such message relating to the application as the doctor might require to be sent to the applicant.

The Lord Mayor of London will act as chairman of the general committee promoting Health Week to be held from May 2nd to 8th next.

Viscount Astor will preside at the thirty-first Congress of the Royal Sanitary Institute, to be held at Birmingham from July 19th to 24th, 1920.

Dr. D. W. Carmalt Jones has been appointed Professor of Systematic Medicine in the University of Otago, and leaves for New Zealand early in February.

The London division of the National Deposit Friendly Society has endowed a cot in the Alexandra Ward of the Hospital for Sick Children, Great Ormond-street, at a cost of £1000.

The Public and Secondary Schools Red Cross Hospitals have handed over to the Village Centres Council (51, Lincoln's Inn-fields, London, W.C.) the balance of their funds, amounting to £3500.

The Executive Committee of the Fellowship of Medicine and Post-Graduate Medical Association called for to-day (Friday) has been postponed to Monday next (Jan. 5th), at 6 P.M., owing to the death of Sir William Osler, President of the Association.

St. Thomas's Hospital.—The old students' dinner, postponed from Oct. 1st, will take place at the Connaught Rooms, Great Queen-street, on Wednesday, Jan. 14th, at 7 for 7.30 P.M. The chair will be taken by Sir George H. Makins.

St. Mary's Hospital Medical School.—The annual dinner of past and present students, postponed from Oct. 1st, will take place at the Connaught Rooms, Great Queen-street, London, on Friday, Jan. 9th, at 7 for 7.30 P.M., Sir Almroth Wright presiding.

North-East London Post-graduate College.—The opening address of the spring session by Sir Humphry Rolleston on the Uses and Methods of Application of Post-graduate Teaching will be given on Tuesday, Jan. 13th, at 4.30 P.M., at the Prince of Wales's General Hospital, Tottenham, London, N. Medical practitioners wishing to attend will receive a card of invitation on applying to the Dean.

The Vermin Repression Society.—A dinner will be held at the Connaught Rooms, Great Queen-street, London, on Friday, Jan. 9th, at 7.30 P.M., to celebrate the passage into law of the Rats and Mice Bill, originated by the society in 1908. Lord Aberconway will preside, and he will be supported, amongst others, by Professor S. J. Hickson, Sir Anderson Critchett, Dr. W. J. Howarth, Dr. Nathan Raw, M.P., Professor W. J. Simpson, and Dr. J. W. Eyre. The society has recently issued a paper intended to be of service to all affected by the Rats and Mice (Destruction) Act, a copy of which will be sent gratis to any reader who sends a stamped, addressed envelope to the honorary secretary, Lieutenant Alfred E. Moore, 44, Bedford-row, London, W.C. 1.

Literary Intelligence.—Messrs. Longmans announce the publication at an early date of a volume on the Life and Work of Sir Jagadis Chandra Bose, the founder of the Bose Research Institute in Calcutta, and the first native of India to obtain a European reputation in physical science. The volume has been written by Professor Patrick Geddes, of the Department of Sociology and Civics, Bombay University.—Mr. Paul B. Hoeber, of 67–71, East 59th-street, New York, has issued for the Faculty of the College of Physicians and Surgeons of New York a portfolio of 24 portraits in photogravure of the medical staff of Columbia University, by Mrs. Doris U. Jaeger, at $10, with a preface by Dr. Samuel W. Lambert.

National Association for the Prevention of Infant Mortality.—A course of advanced lectures on infant care, for teachers, infant welfare workers, mothers, &c., will be held at Morley Hall, George-street, Hanover-square, London, W., on Mondays, from 5.30 to 6.30 P.M., from Jan. 12th to March 29th. This course is in preparation for the advanced certificate of the Association. Fees for the whole course of 12 lectures, 5s.—A course of advanced lectures on infant care, especially intended for creche nurses and probationers, will be held at the Essex Hall, Essex-street, London, W.C., on Thursdays, from 7.30 to 8.30 P.M., from Jan. 8th to March 25th. This course is in preparation for the creche nurses' certificate now instituted by the association in coöperation with the National Society of Day Nurseries. Fees for the whole course of 12 lectures, 10s. In both cases tickets can be obtained from Miss Halford, secretary, National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C. 1.

New Year Honours.—A representative group of medical names appears in the list of distinctions published on Jan. 1st, 1920. To Sir Bertrand Dawson has fallen the honour, on which we comment elsewhere, of becoming the first practitioner peer. Knighthoods have been granted to Mr. Josiah Court, M.R.C.S., of Chesterfield, a magistrate and consulting surgeon to the Derbyshire Miners' Union; to Mr. Henry J. Gauvain, M.D., M.Ch., medical superintendent of Lord Mayor Treloar Cripples' Hospital at Alton; and to Mr. Frederick S. Lister, M.R.C.S., research bacteriologist to the South African Institute for Medical Research. Dr. W. T. F. Davies, a Member of the South African House of Assembly, receives the C.M.G. Three medical women receive the Kaisar-i-Hind Medal; Dr. Kate A. Platt, principal of the Lady Hardinge College at Delhi; Dr. Margaret I. Balfour, joint-secretary to the Lady Dufferin Fund; and Dr. Ida S. Scudder, in charge of Mary Taber Schell Hospital at Madras. Other recipients of honours, closely associated with the medical profession, are Sir W. E. Cain, a generous donor to Liverpool hospitals, who becomes a baronet; Mr. G. W. Needham, president of Oldham Royal Infirmary, and Mr. Thomas Neill, chairman of the Ministry of Health Consultative Council on Health Insurance, who become knights bachelor. Mr. Otto Beit's labours for the South African hospitals have been recognised by a K.C.M.G. Learning and exact science are honoured in the persons of Sir Richard Glazebrook, late director of the National Physical Laboratory, who becomes K.C.B.; and Professor Arthur Schuster, late secretary to the Royal Society, who has been knighted.

Liverpool Medical Institution.—At a meeting of the Pathological Section, held on Dec. 18th, 1919, with Dr. Hubert Armstrong, Vice-President, in the chair, Mr. Keith Monsarrat read a note on Two Cases of Massive Calculous Deposit in the Urinary Channels which had developed in soldiers while under treatment for fractures. Radiographs showed the development and retrogression of the calculi. The speaker was of the opinion that such cases did not belong to the domain of surgery, but could be cured by medical measures and exercise. Mr. G. P. Newbolt recounted a similar case where cure resulted after continuous treatment with citrate of potash. Professor E. E. Glynn contributed a paper on the Presence of Spirochætes in the Sputum of a Case of Bronchiectasis. The sputum was airless and purulent, but not nummulated, and contained round, yellow granules consisting of bacteria and spirochætes, the latter sometimes in enormous numbers. It seemed clear that these granules were formed not in the mouth but in the lung, and formed an airless medium wherein spirochætes could develop. It was suggested that they were a variety of Dittrich's plugs, which would probably be found to contain spirochætes if examined with that possibility in view. Graphs of the morphological features of these spirochætes, obtained by the measurement of large numbers of camera lucida drawings, were shown and compared with graphs of other spirochætes. They supported the suggestion that the condition was not the chronic stage of a previously acute bronchial spirochætosis, but was a secondary mouth infection. Professor Glynn was inclined to the view that the spirochætes in the granules were pathogenic, at least to the extent of increasing the severity of the disease. A similar condition had been found in a second case of bronchiectasis.

North of England Obstetrical and Gynæcological Society.—At a meeting held in Manchester on Dec. 19th, 1919, Dr. J. W. Bride read a paper on the After-results of the Removal of One or Both Appendages in Hysterectomy for Fibroids. The patients in 300 cases operated on at St. Mary's Hospital, Manchester, between the years 1909 to 1913 inclusive, for fibroids or, in a few instances, for chronic metritis, had been circularised. Dr. Bride based his paper on the 231 replies received. Questions were put bearing on general health, temperament, headaches, digestion, nervous stability, pain, capability for work, nutrition as regards fat, hot flushes, sexual inclination and comfort, and memory. Answers to the first six appeared in favour of the radical operation, but, with the possible exception of pain, the distinction was not very marked. The replies to the next four questions, particularly as regards flushings and sexual inclination and comfort, suggested the advantage of a conservative operation. The last question put produced indeterminate replies. In general there appeared to be very little to choose between the two operations. It was noticeable that flushings, both immediate and remote, were complained of in a number of cases where a conservative operation had been done. Dr. A. Donald, Dr. J. E. Gemmell, and Dr. W. E. Fothergill instanced objections to a conservative operation, the last-named observing that, as the ovary after hysterectomy ceased to function at the end of two years, it did not seem worth while to conserve it for that short period. He suggested as a sound rule for all operations involving removal either to leave a "working set" or to make a clean sweep.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

HERZFELD, GERTRUDE, M.B., Ch.B., has been appointed Assistant Surgeon to the Royal Hospital for Sick Children, Edinburgh.

JONES, D. W. CARMALT, M.D., F.R.C.P., to the Chair of Systematic Medicine in the University of Otago.

SMITH, A. W., M.D., temporary Assistant Physician, Crichton Royal Institution, Dumfries.

WILLIAMS, E. C., M.D. Lond., Medical Officer of Health by the Glamorgan County Council.

Royal Portsmouth, Portsea, and Gosport Hospital: WOODBURN, W. Y., M.D., Ch.B. Edin., Honorary Assistant Physician; CARLING, W., M.B., B.Ch. Camb., Honorary Assistant Anæsthetist.

Certifying Surgeons under the Factory and Workshop Acts: COSGROVE, E., L.K.Q.C.P., L.R.C.S. Irel. (Maynooth); GALLOWAY, W. H., M.R.C.S., L.R.C.P. Lond. (Otley); GILMORE, W., M.B., B.Ch., B.A.O. Belf. (Saintfield).

Vacancies.

For further information refer to the advertisement columns.

Ballinasloe District Asylum.—M.O. £225.

Birkenhead Borough Hospital.—Two Hon. Asst. M.O.'s.

Brighton, Royal Sussex County Hospital.—Hon. Surg. Clin. Asst.

Central London Throat and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Anæsth.

Charing Cross Hospital, W.C.—Orthop. S., Hon. Anæsth., and Three additional Hon. Anæsths.

Chester City and County.—Asst. M.O.H. £500.

Derby, Derbyshire Royal Infirmary.—Cas. O. £150.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

East African Protectorates.—M.O.'s. £400–£20–£500.

Great Northern Central Hospital, Holloway, London, N.—H.S. £150. Two P.'s.

Huddersfield County Borough Education Authority.—Asst. Sch. M.O. £475.

Ilford Urban District Council.—Asst. M.O.H. £500.

Italian Hospital, Queen-square, W.C.—Hon. Anæsth. and Hon. Asst. Anæsth.

Lancaster, Royal Albert Institution for the Feeble-Minded.—Asst. M.O. £500.

Leasowe, Cheshire, Hospital for Children.—Jun. Res. M.O. £150.

Leicester Royal Infirmary.—Res. Anæsth. £300.

Liverpool, City Infectious Hospital, Fazakerley.—Asst. Res. M.O. £250.

Liverpool, Fazakerley Sanatorium for Tuberculosis.—Asst. Res. M.O. £300.

London Lock Hospital, 91, Dean-street, W.—Hon. S.

Lowestoft Borough.—Female M.O., &c. £500.

Manchester Children's Hospital, Gartside-street, Manchester.—Asst. M.O. £200.

Manchester Royal Infirmary.—Res. Anæsth. £100.

Metropolitan Asylums Board.—Sen. Asst. M.O. £450. Second Asst. M.O. £400. Third and Fourth Asst. M.O.'s. £350.

Middlesex County Council, Napsbury Mental Hospital, near St. Albans.—Jun. Asst. M.O. £400.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £450.

Ministry of Pensions Hospital, Orpington, Kent.—Res. Aural S. £400.

Neath Rural District Council.—M.O.H. £750.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200. Hon. S. Also Hon. P. to Skin Dept.

Newport Education Committee.—Dent. £400.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham City Asylum.—Second Asst. M.O. £350.

Nottingham General Hospital.—Cas. H.S. £150.

Plymouth Education Authority.—Asst. Sch. M.O. £400.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. S.

Rainhill, near Liverpool, County Asylum.—Asst. M.O.'s. £300.

Reeth Union and Rural District Council, Yorkshire.—M.O.H., &c. £95.

Royal Free Hospital, Gray's Inn-road, W.C.—Surg. Regist. and Hon. Asst. Dent. Surg.

St. Helens County Borough.—Asst. M.O.H. £400.

Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—S.

Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh Gardens, N.W.—Med. Supt. £400.

Sheffield University.—Demonstrator in Path. and Bact.

Stafford, Staffordshire General Infirmary.—H.P. £200.

Stockport Infirmary.—Jun. Res. M.O. £200.

Straits Settlements.—Professor of Anatomy for Medical Department. $600 a month.

Sunderland Education Committee.—Female Asst. Sch. M.O. and Two Sch. Dent. £450 each.

Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Female Jun. Asst. M.O. £300.

University of Birmingham, Faculty of Medicine.—Lecturer in Bacteriology. £450.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. Each £100.

Westminster Hospital, Broad Sanctuary, S.W.—P.

Whittingham County Asylum, Preston, Lancs.—Asst. M.O. £420.

Worcestershire County Council.—Asst. County M.O. £450.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Canterbury, Shanklin, Colnbrook, Dewsbury, Gamlingay, and Burnham Market.

Births, Marriages, and Deaths.

BIRTHS.

BESWICK.—At Elmwood House, Nantwich, on Dec. 24th, 1919, to Dr. and Mrs. W. T. Beswick (née Chandler)—a son.

CURNOCK.—On Dec. 26th, 1919, at a Nursing Home, the wife of D. Reginald Curnock, M.R.C.S., L.R.C.P., L.D.S. Eng., of a son.

DAVIS.—On Dec. 21st, 1919, at Upper Berkeley-street, W., the wife of K. J. Acton Davis, F.R.C.S., of a son.

DUN.—On Dec. 22nd, 1919, at Rodney-street, Liverpool, the wife of Robert Craig Dun, F.R.C.S. Eng., of a daughter.

FOX.—On Dec. 27th, 1919, at Ashburn-place, South Kensington, the wife of Reginald A. Fox, M.C., L.D.S., D.D.S., of a son.

HURRY.—On Dec. 25th, 1919, at "Ventnor," St. Matthew's-road, Worthing, the wife of Captain H. R. Hurry, R.A.M.C., of a daughter.

ILES.—On Dec. 26th, 1919, at Victoria-square, Clifton, Bristol, the wife of Arthur E. Iles, O.B.E., F.R.C.S., of a daughter.

LINDSEY.—On Dec. 20th, 1919, at "Beaumont," Portman-crescent, Bournemouth, the wife of Dr. Mark Lindsey, of a son.

MARRIAGES.

DUFF—LUMSDEN.—On Dec. 30th, 1919, at St. John's Church, Westminster, Mr. Donald Duff, F.R.C.S., Newton-place, Glasgow, to Margaret Simpson, only daughter of the late James Lumsden, Edinburgh.

LYNN-THOMAS—MACRAE.—On Dec. 9th, 1919, at St. George's U.F. Church, Edinburgh, by the Rev. Prof. H. F. MacKintosh, Charles Ivan Lynn-Thomas, formerly Lieutenant, 1st South Wales Borderers, son of Sir John Lynn-Thomas, K.B.E., C.B., C.M.G., and Lady Lynn-Thomas, R.R.C., of Greenlawn, Penylan, Cardiff, and Dorothy Guthrie MacRae, daughter of Duncan MacRae, of Ruthven, Kingussie.

SCOTT—WADDELL—On Dec. 26th, 1919, at Woodbank Hotel, Dumfries, Captain George Macdonald Scott, M.C., R.A.M.C. (S.R.), to Mia Mackintosh Gray, daughter of J. B. Waddell, Airlie, Dumfries.

DEATHS.

BRUNTON.—On Dec. 25th, 1919, at Rutland-gardens, Hove, Linton Brunton, M.R.C.S., aged 84.

BURGE.—On Dec. 25th, 1919, suddenly, Dr. Frederick John Burge (late of Shanghai), of Bournemouth.

JOHN.—On Dec. 27th, 1919, at Albion-road, Hampstead, William John, M.R.C.S. Eng., aged 78.

LISTER.—On Dec. 24th, 1919, at Bexhill, Charles Henry Lister, M.D., formerly of Croydon and Tunbridge Wells, aged 76.

LYLE.—On Dec. 30th, 1919, suddenly, at Speldhurst, Elmfield-road, Bromley, Kent, in her 48th year, Annie Seaton, the dearly loved wife of Herbert Willoughby Lyle, M.D. Lond., F.R.C.S., and only daughter of the late E. W. Winton, of Speldhurst, Tunbridge Wells, and of Mrs. Winton, of Etherton House, Widmore-road, Bromley. Funeral service at the Parish Church, Bromley, on Saturday, Jan. 3rd, at 11.15 A.M.

ROSS.—On Dec. 25th, 1919, at "Roslyn," 153, Brigstock-road, Thornton Heath, Surrey, William George Ross, M.D., formerly of the 8th (The King's) Regiment and Army Medical Department, aged 79. (15th May, 1840.)

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. A. S. Alexander, Lond.

B.—Dr. A. E. Boycott, Radlett; Dr. W. L. Brown, Lond.; Dr. E. C. Bousfield, Lond.; Mrs. Brunelle, New York; Dr. J. Blomfield, Lond.; Board of Trade, Lond.

C.—Dr. C. Coombs, Bristol; Dr. Christopherson, Norwich; Dr. F. G. Crookshank, Lond.; Dr. B. Crichton, Ballysodare; *Le Courrier Colonial*, Paris; Dr. F. F. Caiger, Lond.; Chester and North Wales Medical Society, Chester, Hon. Sec. of; Mr. L. Cappelli, Bologna; Mr. A. T. Clarkson, Lond.

D.—Mr. H. Davis, Lond.

G.—Mr. P. Gully, Hove; Dr. J. P. Gray, Exeter.

H—Dr. A. F. Hurst, Lond.; Dr. C. T. W. Hirsch, Lond.; Dr. J. Haddon, Denholm; Mr. B. Hughes, Bradford; Dr. C. W. Hutt, Dudley; Dr. G. Herzfeld, Bolton.

I—Dr. E. C. B. Ibotson, Corris.

L.—Mr. H. K. Lewis, Lond.

M.—Ministry of Health, Lond.; Ministry of Pensions, Lond.; Mr. J. S. Milne, Swalwell-on-Tyne; Dr. I. Macdonald, Huelva; Mr. G. P. Mills, Birmingham; Dr. H. M. Mackay, Lond.; Mr. C. MacMahon, Lond.

N.—National Safety Council, Chicago; Mr. J. Nixon, Londonderry; Mr. J. E. Nicole, Lond.

O.—Dr. Orchard, Kingussie.

P.—Pastel Society, Lond., Sec. of; Mr. L. Paton, Lond.; Polish Information Committee, Lond.; Dr. V. Pauchet, Paris; Dr. A. Pettit, Paris; Mr. F. W. Pilkington, Kencott.

R.—Royal Institute of Public Health, Lond.; Rockefeller Institute for Medical Research, Lond.; Mr. H. M. Rainsford, Lond.; Dr. R. R. Rentoul, Liverpool; Sir G. A. Reid, Southsea.

S.—Dr. R. H. Shaw, Great Yarmouth; Mr. F. P. Smith, Crossdoney; Prof. W. Stirling, Manchester.

T.—Mr. C. W. J. Tennant, Lond.; Dr. E. Thomson, Bothwell; Dr. L. T. Thorne, Lond.; Dr. C. J. Thomas, Lond.; Dr. A. H. Thompson, Lond.; Prof. A. Thomson, Oxford.

V.—Vermin Repression Society, Lond.

W.—Dr. J. W. Wood, Lond.; Dr. H. Williamson, Lond.; Dr. J. K. Welsh, Motherwell; Dr. F. P. Weber, Lond.; Mr R. B. H. Wyatt, Lond.; Miss C. Whitworth, Doncaster.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Jan. 6th.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.

Cases:

Mr. Laming Evans: Osteitis of Tibia of Doubtful Nature.

Mr. R. C. Elmslie: Traumatic Coxa Vara in a Child aged 8 Months, due to a Birth Injury.

Wednesday, Jan. 7th.

SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—W. Sampson Handley, Sir Gordon Watson): at 5.30 P.M.

Discussion:

On "Diverticulitis," to be opened by Dr. Maxwell Telling. The Discussion will be continued by Professor A. Keith, Mr. Lockhart-Mummery, Dr. E. I. Spriggs, Mr. McAdam Eccles, Mr. Grey Turner, Mr. Rutherford Morison, Mr. Hamilton Drummond, Mr. Garnett Wright, Mr. James Berry, Mr. R. P. Rowlands, Mr. Maynard Smith, Mr. H. S. Clogg, Mr. A. C. Jordan, Mr. Ivor Back, Mr. Peter Daniel, Mr. L. E. C. Norbury, Mr. W. E. Miles, Dr. de Bec Turtle, Sir C. Gordon Watson, Mr. Hernaman-Johnson, Mr. Sampson Handley.

A collection of specimens illustrating the subject of discussion will be on view from 2.30 P.M.

If necessary the Discussion will be adjourned and be reopened by the President of the Sub-Section, Mr. Lockhart-Mummery.

Following the meeting on Jan. 7th the Annual Dinner of the Sub-Section will be held at Oddenino's Restaurant, 60, Regent-street, at 8 for 8.15 P.M. Cost of dinner 13*s.* 6*d.*, exclusive of wine. Members of the Sub-Section are entitled to invite one guest, but must intimate their intention to Mr. Sampson Handley before Jan. 3rd.

Thursday, Jan. 8th.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Paper:

Dr. F. M. R. Walshe: Forms of Peripheral Neuritis among Troops serving with the Egyptian Expeditionary Force 1915–1919.

Friday, Jan. 9th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5.30 P.M.

Address by the President:

Sir Anthony Bowlby: The Application of War Methods to Civil Practice.

Exhibition of Cases.

Will any members of the Section who desire to show cases please communicate with the Hon. Secretaries?

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

SATURDAY, Jan. 10th.—10.15 A.M., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Christmas Lectures on the World of Sound, by Prof. W. H. Bragg, C.B.E.:—

TUESDAY, Jan. 6th.—3 P.M., Lecture IV.:—Sounds of the Town.
THURSDAY.—3 P.M., Lecture V.:—Sounds of the Sea.
SATURDAY.—3 P.M., Lecture VI.:—Sound in War.

BOOKS, ETC., RECEIVED.

FROWDE, H., AND HODDER AND STOUGHTON.
The Cambridge Note Book for Practical Biology (Zoology). By J. S. Gardiner, F.R.S., and L. A. Borradaile, M.A. 5*s.*
A Guide to Gynæcology in General Practice. By Comyns Berkeley, M.D., M.C., and Victor Bonney, M.S., M.D. Pp. 467. 31*s.* 6*d.*
The Microscopic Anatomy of the Teeth. By J. Howard Mummery, D.Sc., L.D.S. Pp. 382. 25*s.*

LANE, JOHN, London and New York.
The End of a Dream. By A. M. N. Jenkin. Pp. 292. 7*s.*
The Margaret Book. By A. Clark, N.Z.M.C. Pp. 189. 5*s.*

LAURIE, T. WERNER, London.
The Truth of Spiritualism. By "Rita" (Mrs. Desmond Humphreys). Pp. 152.
Madame Prune. By Pierre Loti. Translated from the French by S. R. C. Plimsoll. Pp. 240. 10*s.* 6*d.*
Why we do it: Pathological Gossip. By R. McMillan. Pp. 218. 6*s.*

LEA AND FEBIGER, Philadelphia and New York.
Pulmonary Tuberculosis. By M. Fishberg, M.D. 2nd ed. Pp. 744.
Roentgen Interpretation. By G. W. Holmes, M.D., and H. E. Ruggles. Pp. 212. $2.5.
The Principles of Nursing. By C. A. Brown, R.N. Pp. 262.
A Manual of Hygiene and Sanitation. By S. Egbert, M.D. 7th ed. Pp. 554.
Rules for Recovery from Pulmonary Tuberculosis: A Layman's Handbook of Treatment. By L. Brown, M.D. 3rd ed. Pp. 192.
Applied Anatomy and Kinesiology. By W. P. Bowen, M.S. 2nd ed. Pp. 334.
Experimental Pharmacology. By H. McGuigan, M.D. Pp. 250.
Hygiene and Public Health. By G. M. Price. 2nd ed. Pp. 280.

Notes, Short Comments, and Answers to Correspondents.

CHRONIC DISEASE AND CIVIC INEFFICIENCY

Being Part of a Chadwick Lecture on "The Relation of the State to Chronic Disease."

BY R. O. MOON, M.D. OXON., F.R.C.P. LOND.,
CONSULTING PHYSICIAN, WESTERN GENERAL DISPENSARY, MARYLEBONE, ETC.

How is the State to deal with the civic inefficiency which results from the partial disablement caused by chronic disease? Speaking generally, most patients with any kind of chronic disease who are able to be up and about are really the better for some occupation; the occupation, in fact, may be regarded as a part of the treatment. Unfortunately, men who suffer from chronic disease are seldom able to earn a full day's wage; cases of tuberculosis, which are otherwise fairly well, cannot as a rule work for more than 5–6 hours per diem, and on economic grounds it would be justifiable to subsidise the labour of consumptives.

In regard to epileptics—I am not speaking of those who have fits with great frequency or in whom there may be indications of mental alienation—the average case that comes to the out-patient department of a hospital can, from the point of view of physical strength, work at most ordinary occupations with some safeguarding. Obviously there are activities for which epileptics are ineligible; thus a large part of the building trade would have to be ruled out, and any occupation in close contact with machinery. There remain a number of employments in which an epileptic can do the work of an A 1 man.

Many other diseases of the nervous system, both those technically known as "functional" as well as those in which some organic lesion of the spinal cord is present, are far from being incompatible with wage-earning occupation if careful study were made of the kind of activity suited to each affection.

As regards the sum-total of loss of labour, pain, and general suffering, diseases connected with the heart probably exceed tuberculosis in importance; but for heart disease there are no after-care committees. Cardio-vascular disease should, like tuberculosis, be attacked at its source. The most important single cause of heart disease is rheumatism, and could we abolish this in early life 50 per cent. of circulatory troubles would disappear. Rheumatism should be easier for the State to deal with than tuberculosis, since we are not troubled with the question of infectivity; on the other hand, we have more precise knowledge of tuberculosis than of rheumatism.

Industrial Strain.

Apart from rheumatism, the dominant cause of circulatory breakdown is the strain of industrial conditions. Work which a man of 20 finds well within the range of his powers may be exhausting when he reaches the age of 50. Some occupations involve periodical rushes, and are unfitted for most men past middle life. The ætiological importance of industry as a factor in disease has hardly been sufficiently appreciated. Each succeeding stage of industrial development has been attended by labour problems, social difficulties, and manifestations of ill-health peculiarly its own.

At the present day there are special types of fatigue due (1) to the intensive nature of the work; (2) to its monotony; (3) to strain. There are a number of hours during which a man can work comfortably, and beyond these labour loses its productive value. Obviously, all occupations are not equally fatiguing for the same number of hours worked, consequently the number of hours of work must differ considerably in different trades, and to fix the same length of working day for all trades would be highly irrational.

It ought to be possible to draw up a list of chronic diseases with the kinds of activities for which they are suited. In this the State should work hand in hand with the medical profession, by thinking over the various industrial and agricultural occupations, collating the growing medical experience thereon, in order to determine what activities are favourable to what diseases. Something of this kind has been done in connexion with disabled soldiers, but it might be extended to all citizens. Thus the employment bureau of the labour exchanges has furnished a very useful list of occupations suitable for various forms of inactivity, e.g., occupations suitable for those who have lost one arm have been found to be: (1) Substation switchboard; (2) wholesale tailoring; (3) hand-loom weaving; (4) french polishing; (5) draughtmanship; (6) surveying; (7) commercial work; (8) book-keeping; (9) commercial traveller; (10) forestry and certain forms of agricultural work; (11)

lephone exchange operator; (12) diamond cutting (only per cent. of wages can be earned by them at this).

In numerous cases a man working before the war at an nskilled trade for which his disability unfits him, has been ained in a Government school for [illegible] skilled occupation; any inborn talents thus have the opportunity of displaying emselves.

Varieties of Light Occupation.

One advantage of a civilisation with its highly developed vision of labour is that it makes it more possible to find ccupation for the permanently disabled owing to the eater variety of "light jobs." In a purely agricultural mmunity the outlook would be far less favourable, as there e but few departments of agricultural work where the bour can be considered as really light. Speaking generally, e occupations connected with agriculture are specially ited for those who are suffering from shell shock, neurasenia, or tuberculosis. Connected with agriculture, though bsidiary to it, are horticulture, fruit-growing, and estate rpentry, all of which may be suitable for those requiring tdoor employment but unable to do heavy work.

What occupations can be indulged in safely and with profit y those suffering from heart affection? Most doctors have et with men who, in spite of a serious disease of their heart, ave been able to do astonishingly hard work, but such ses are exceptional. "Basket-making," which is naturally assed [illegible] "light work," sometimes proves unsuitable for ose suffering from a comparatively minor affection of the eart; the making of a large basket involves [illegible] wide tension of the arms and an undue strain upon the eart. A discharged soldier with a not very serious ndition of his heart, found himself unable to do ot repairing because it involved standing upright at the ench for long hours at a stretch, which, of course, uts [illegible] strain upon the circulation. Boot-making, though assed [illegible] "light occupation," is not suitable for ost forms of heart disease as it involves much use of the ms both in hammering and wide stitching; the posture boot-makers is also bad for all kinds of chest complaints. ut many kinds of light leather work are eminently suitable r such ailments, and the fine stitching required in the boot ade has proved particularly suitable for some forms of eurasthenia. It has been stated by Sir James Barrett that e unemployed of the better class are those who have ever been taught to do anything properly. If every ember of the community received an adequate training r some special occupation the increased value of their bour would abolish poverty and solve the social problem.

COLONIAL HEALTH REPORTS.

St. Helena.—The estimated civil population on Dec. 31st, 18 was 3654. The death-rate in 1918 among civilians was 85 per 1000, the lowest since 1909. The birth-rate was 30·65 r 1000, the highest for the last 10 years. Of the 36 deaths gistered, [illegible] were over 70, 3 over 80, and 1 of 92 years of age. here were 37 marriages, as against 33 in 1917. The Acting olonial Surgeon reports a slow but steady decline in the neral health of the colony, as evidenced by mild epidemics influenza, dysentery, and chicken-pox. Cases of phthisis d tuberculosis were rare. Dental caries is very prevalent d runs riot, as there is no dentist in the colony; it is very rgely responsible for the low stamina of the inhabitants d their inability to resist minor diseases. The island has en fortunate in entirely escaping the so-called Spanish fluenza. The mean temperature was 61·4° F. and the total infall 40·13 inches (9·30 inches less than in 1917). There ere 164 admissions to the hospital during the year and ere were 8 deaths. The nursing staff was under strength r the greater part of the year, and much extra work and sponsibility fell on the shoulders of the superintendent, iss Hart.

Fiji.—According to a report by the acting Colonial ecretary (Mr. R. Rankine) on the Blue-book for 1918 the timated population on Dec. 31st, 1918, consisted of 4748 uropeans, 2803 half castes, 61,745 Indians, 2709 Polynesians, ,761 Fijians, 2100 Rotumans, 913 Chinese, and 637 others—tal 163,416, as compared with 139,541 at the Census of 1911. [illegible] compared, however, with 1917 there was a decrease of 75. The outstanding event of the year, fraught with rious consequence to the colony, was an outbreak of fluenza in November. The epidemic came at a time hen, owing to the depletion of the medical service, cal shipping difficulties, and the dislocation of steamer rvices with Australia and New Zealand in conquence of labour troubles, the task of coping with it was ore difficult than would have been the case in normal mes. So soon as the epidemic assumed a serious nature e services of practically the whole European population ere placed unreservedly at the disposal of the Government, d voluntary workers assisted in attending not only uropeans, but also Fijians, Indians, and other coloured embers of the community. Temporary hospitals were tablished in Suva and other centres, and hospitals belonging to plantation owners were requisitioned and used for the treatment of patients. Medical relief parties from New Zealand and Australia, under Colonel Jennings and Major Alexander respectively, rendered excellent assistance in various parts of the colony. The local medical officers worked at exceedingly high pressure throughout the epidemic, and their services and those of the medical relief parties and voluntary workers undoubtedly saved a very large number of lives. Notwithstanding the steps taken, the epidemic caused deaths numbering 8145, being 4·96 of the population, while the expenditure incurred amounted to some £10,000. The Colonial Hospital, Suva, is the principal medical institution in the colony. The number of patients treated in 1918 was 2480, of whom 266 were Europeans. There is a branch hospital at Levuka; admissions during 1918 were 534. There are 11 provincial hospitals for the treatment of native Fijians, and to these the admissions totalled 6324. Government medical officers attached to several of the hospitals were absent during the year on war service, and in those cases native medical practitioners were left in charge. A leper asylum on the island of Makogai is under the charge of a medical superintendent, who is assisted by [illegible] European medical officer and five European and three Fijian nursing sisters. The lepers in the asylum on Dec. 31st, 1918, numbered 327.

Seychelles.—The estimated population of the colony at the close of the year 1917 was 24,572. The birth-rate for the year was 26·13 per 1000, the proportion of illegitimate children being high; the death-rate was 17·4 per 1000. In the Victoria Hospital 748 in-patients were treated, and in the Government dispensaries 3583 patients were treated. The Maternity Home continued to be well patronised, the number of patients admitted being 207, and the number of babies born 151. The average number of patients in the Lunatic Asylum, South Mahé, during the year was 23. An epidemic of measles which started in December, 1917, continued for the first six months of 1918. The schools were kept closed during January, February, and March. Nearly all the children under 15 years of age contracted the disease, which was for the most part of a mild type, and complications were singularly few. There were no other epidemic diseases during the year, and the general health of the inhabitants was good. The prevailing poverty made itself felt on health to a small extent, the sufferers being mostly very young children. The ankylostomiasis campaign was continued with unabated vigour by Dr. J. F. Kendrick of the International Health Board. By the end of the year the campaign had been completed over the whole of the Mahé, to the great benefit of the general health.

DEA PALLIDA.

O! Lady of the twisted smile and doubtful glance,
  Creeping with hungry lip and darting eye
Throughout the world! Men worship you in France;
  On Thracian hills, through Spain and Italy
They tend your fires; the misty, northern isle
  Is careful of your rites; far sun-rise lands
Are ancient slaves to you; exulting Nisle
  Has caught you to his breast; the desert sands
Are burned with your desire; each Holy Place
  Has pushed aside the veil (Jerusalem
Or Mecca—where you will), and [illegible] your face,
  And pays the growing price. Your diadem,
Jewelled with tortured souls, is fair to see,
  And where you nod men follow steadfastly.

S. K. VINES.

FATAL BLOOD-POISONING IN NORFOLK.

Two fatal cases of so-called blood-poisoning have been recently reported in Norfolk. The first case occurred at Yarmouth. The patient sustained a slight wound, little more than a scratch, on the first finger of her left hand while cutting up some foreign bacon on Dec. 12th. Next day she complained of some pain in her chest and sent for a doctor, who considered at first that she was suffering from a form of acute rheumatism of the muscles of the chest wall. There had been a shivering attack the previous night, but there [illegible] no sign of inflammation either in the cut finger or the arm. A consultant's opinion was obtained from Norwich, and the medical men agreed that there was no cause in the lungs to account for the symptoms, but that the patient was suffering from septicæmia, which had originated from the wound in the finger, but had passed the usual barriers in the forearm and axilla and directly affected the general circulation. The patient died a few days later from acute septicæmia.

The second case was that of a middle-aged man who [illegible] a splinter of wood under one of his finger-nails. He consulted his panel doctor, who, finding the hand acutely inflamed and the man apparently very ill, told him he must go into hospital, as an operation would be necessary. The man accordingly walked to the Norfolk and Norwich Hospital, a distance of about five miles, when two operations were performed, in spite of which he died from acute septicæmia.

METHYL ALCOHOL AND BLINDNESS.

THE tragedy reported from New York, in which a hundred or more persons lost their lives and many others their sight from drinking wood spirit, apparently in mistake for whisky, calls public attention to the exceedingly poisonous character of methyl alcohol. So long as wood spirit was a dark, evil-smelling liquid few were tempted to take it as a beverage, but as now purified it is scarcely distinguishable to the eye or to the nose from ethyl alcohol, and probably provides an agreeable diversion to the jaded palate. The danger has been foreseen for some time, and the National Committee for the Prevention of Blindness (130, East Twenty-second Street, New York) issued broadcast the following warning: "One teaspoonful of wood alcohol taken internally is sufficient to cause total blindness—a larger quantity often causes death. If you value your eyesight or your life, never use wood alcohol, denatured alcohol or medicated alcohol for drinking purposes. Pass this knowledge on if you would assist in reducing the fatalities which are occurring from this cause." The tragedy will not be all loss if it serves as an effectual reminder that any substitute for alcohol can only be taken at deadly personal risk.

PROPOSED NEW WELSH HOSPITAL.

Mr. H. Seymour Berry, J.P., of Merthyr, has offered to provide a site at Pontsarn, near Merthyr Tydvil, and spend £10,000 on temporary hospital buildings. He is also willing to give £10,000 towards the provision of a new permanent general hospital on condition that the public establish an endowment fund of £100,000.

A WAISTCOAT POCKET CALENDAR.

THE R. H. Heward Company, Twickenham, have published a convenient little calendar for the waistcoat pocket. It measures 2 inches by 1½, has a leather cover, and in addition to an almanack in bold type gives the dates of bank holidays, movable feasts, and postal information. The company state that they are willing to send one of these useful calendars to anyone who is interested in surgical instruments and appliances.

GERMAN HOUSING STRAITS AND SCHEMES.

THE Ministry of Health has issued a report prepared by what was once the Intelligence Department of the Local Government Board on the housing problem in Germany.[1] There matters have followed generally much the same course as in this country, but owing chiefly to the rapid growth of the German population in recent years, the shortage is even more acute than in Great Britain. The investigations undertaken by the Berlin District Sickness Society disclosed in many cases an appalling state of things. In 1917, for example, two-thirds of the persons visited were living in rooms with no through ventilation, and in a few cases the rooms had no windows; in 36 per cent. of the households an insufficiency of beds was reported. The report goes on to describe the methods that have been adopted so far in Germany to deal with these difficulties, and commends particularly the close attention which has been paid to the subject of town planning. The report is brought up to date by the inclusion of the most recent orders and proposals whose success or failure have yet to be demonstrated.

REDUCTION IN VAGRANCY IN WEST SUSSEX.

THE annual report of the West Sussex Casual Pauper Committee provides some remarkable figures. The principal feature of the operations of the committee is the issue of food tickets in order that the casual paupers may have no excuse for begging, and that this system has met with extraordinary success is shown by the figures just issued in the thirteenth annual report of the committee. Before the system of the committee came into operation no fewer than 19,599 casual paupers were relieved in 12 months (1906) in the county of West Sussex. The figure for the year just ended was 1729. The following shows the figures for each year since 1906, the year 1907 being the first year of the system's operation:—1907, 16,760; 1908, 15,579; 1909, 15,231; 1910, 12,575; 1911, 11,679; 1912, 11,967; 1913, 9109; 1914, 8285; 1915, 581[illegible]; 1916, 4095; 1917, 3422; 1918, 3428; 1919, 1729. It is evident that the operation of this system has brought about a rude change in the life of the habitual tramp, at least in the western half of the county of Sussex. It would be interesting to know what is the experience of other parts of the country—whether the elimination from West Sussex of these dangerous nomads has caused an unusual influx elsewhere. However, the work of the West Sussex committee is not to stop here. It is recorded in its report that the Inter-Counties Vagrancy Committee has determined upon the following: (1) The advisability of the establishment of labour colonies for vagrants; (2) appointment of an executive committee to carry out the resolutions of the committee; (3) the dealing with the discharged sailors an soldiers, on their applying for admission to the casual wards on the lines passed by the committee; and (4) compilation o statistics of arrangements in connexion with the control o vagrancy made by the various vagrancy committees. Th West Sussex committee is to be congratulated on the succes of its labours in reducing in number a body whos picturesqueness has disappeared, and who must be a menac to the countryside.

WINDOW FATALITIES.

To the Editor of THE LANCET.

SIR,—An article entitled "Fatalities in Hospitals Cause by Patients Falling from Windows" (*Journal of the America Medical Association*, August 23rd, 1919, p. 604) tempts me t describe a scheme we have used in the More Hospital for number of years to lessen the opportunities for deliriou patients to escape from the hospital.

We installed a special enunciator in the main hall nea the general service one. This special enunciator has loud bell, differing in tone from the other. From thi enunciator concealed wires extend to a small copper-plat in the baseboard near a corner in each room and ward. I a patient becomes delirious his bed is rolled into the corne of the room or ward, and an electric mat, about 3 ft. by 5 ft in size, is placed in front of the bed and connected by wire to the copper-plate in the baseboard. Over this is place a common rug. Any pressure, as a nurse or patien stepping on the rug, causes the bell attached to the specia enunciator to ring, and is a warning to the nurses.

In a small hospital, especially, all nurses can be readil informed that there is a delirious patient in a certain room and at the sound of the bell it is seldom necessary to go firs to the enunciator to see where the call comes from. Ou experience has been that the nurses are alert and respon promptly to this emergency call. I, myself, have been o the floor when the bell sounded, and have seen two or thre nurses meet at the patient's bedside before he had time t leave the room. No delirious patients have escaped from th hospital or been injured.

I am, Sir, yours faithfully,
C. W. MORE, M.D.
Eveleth, Minn.

CONVERTING GRAMMES INTO OUNCES.

To the Editor of THE LANCET.

SIR,—Following on my letter in THE LANCET of Oct. 25th giving the formula and a mnemonic for converting ounce into grammes, I have been asked for a mnemonic for th formula for the reverse process—namely, grammes int ounces. The formula is, of course, multiply the gramme by ·03527. My mnemonic is "By five fairy figures ranged Stop o Gramme for ounce be changed." (It might b entitled "The Fairy Change.") The "Stop o" recalls th decimal point and zero; and, counting the number of letter in the words "for ounce be changed," gives the sequenc 3·5·2·7. Apart from this, the easily remembered figures 56 grammes equal almost exactly 20 ounces avoirdupois, an thence other proportions can be derived. I have never see this mentioned anywhere. Also, for rough-and-read purposes, if one thought of 456 grammes equalling a poun it would afford a useful clue, as it is easily remembered an easily divisible into 228, 114, 57, 28½, 14¼, 7⅛—that is, down t a quarter of an ounce; and fine adjustments, if desired, ca be made by the first-mentioned formulæ.

I am, Sir, yours faithfully,
F.
London, Dec. 19th, 1919.

A FAVOURABLE SEQUEL TO THE INFLUENZA EPIDEMIC IN AMERICA.

THE industrial mortality records of the Metropolitan Li Insurance Company of New York City show that the healt conditions during last autumn were the most favourable f years past. There were no signs of a recurrence of influenz and the mortality from other diseases was at an unusual low point. Doubtless a large number of susceptible perso were carried off prematurely by the epidemic who wou probably have died this year. At all events, no serio aftermath of the influenza epidemic of 1918 has yet appeare The low death-rates among its policy-holders for the mont of July, August, and September were followed by astonis ingly favourable developments during October a November. Instead of the marked increase that expected in these months, as compared with the summ months, the mortality in October was only very slightly excess of that for September, and was much lower than t normal. Instead of the increase which is usually shown f November, the rate actually declined over 8 per cent. fro the figures for October. A decrease of 16 per cent. in t death-rate for tuberculosis was recorded for November.

Pleximeter is entitled to claim abatement in his income-t return in regard of the cost of tyres, petrol, repairs, a renewals for a car kept for professional purposes, as well the wages and board of the chauffeur.

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[1] The Housing Problem in Germany. London: His Majesty's Stationery Office. 1919. Pp. 89. 1s.

Bradshaw Lecture

ON

THE SURGERY OF THE HEART.

Delivered before the Royal College of Surgeons of England on Dec. 11th, 1919,

BY SIR CHARLES BALLANCE, K.C.M.G., C.B., M.V.O., M.S. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL, ETC.

(Continued from p. 5.)

II.—THE SURGERY OF THE HEART.

THE operations now practised on the heart are: 1. Paracentesis—pericardiotomy. 2. Paracentesis of the right auricle and ventricle. 3. Operation for air embolism of the heart. 4. Cardiac stimulation for arrest of the movement of the heart. 5. Cardiolysis. 6. Operation for injury of the heart itself. Cardiorrhaphy.

1. PARACENTESIS AND PERICARDIOTOMY.

Paracentesis pericardii was first advocated by Riolanus (1649) and trephining the sternum (Riolan's method) was done by Skielderup (1818) and by Malle (1871); but such a severe operation is altogether unnecessary. Trousseau established the method of open incision in France, though Dieulafoy advocated aspiration. Clifford Allbutt (1866), a pupil of Trousseau, persuaded Wheelhouse to tap a pericardium much distended in the course of an attack of rheumatic fever. The patient was dying, and Clifford Allbutt got Wheelhouse out of bed to do the operation.[1] Recovery ensued. This was the first case of the kind in England, and the news of it was quickly followed by the publication of similar cases by Bowditch of the United States, Roberts of Manchester, and many others.

The operation of paracentesis pericardii, or aspiration of the pericardium, should be, I think, banished from surgical practice; just as puncture of the distended abdomen is no longer done in cases of obstruction. It is a leap in the dark, and many cases of wound of the heart or coronary artery have occurred in the course of this operation.[2] Free and safe exposure of the pericardium can be obtained by removing the sternal ends of the left sixth and seventh cartilages. The internal mammary artery must be drawn aside or tied and the triangularis sterni divided. The pulp of the surgeon's finger must be able to examine the pericardium before an incision is made. The knife should be employed to open the pericardial sac. The abundant literature that has accumulated, and the diversity of opinion as to the best site for puncture is of itself evidence that paracentesis is neither simple nor safe.

Trousseau graphically describes the signs and symptoms of gradual distension of the pericardium with fluid. The following is a paraphrase:—

> There is great oppression of the breathing and the facial anxiety increases from day to day. The pericardial dullness soon covers a wide area. It extends from beyond the right edge of the sternum to 3 or 4 cm. outside the nipple line and in the vertical direction from the third rib to the diaphragm. The precordial region is arched. The pulsations of the heart become obscure and muffled as if distant, and finally cease to be heard. The pulse is small and rapid. At the end of a few weeks the dyspnœa is extreme, the patient cannot lie down, the lips are blue, the skin cold and livid, the extremities œdematous, and the face puffy. There is no albuminuria.

Pericardiotomy.

A limited pericardiotomy is the operation of choice for hydrops. A point to remember is that the operator may not know in some cases before incising the pericardium whether the fluid within is serous, bloody, or purulent. Voinitch[3] recommends the resection of the left sixth and seventh cartilages and the adjoining edge of the sternum, thus opening up the costo-xiphoid angle and the costo-sternal interval in the diaphragm. The exposure seems unnecessarily wide for the relief of hydrops, but the point to emphasise is that the lower the opening in the pericardium the better the drainage. I agree with Matas that the lower the point selected for drainage the less likelihood is there of danger to the pleura and heart, and that it is well to strike the pericardial effusion where it is largest and most dependent. The danger of wounding the pleura in pericardiotomy is non-existent with moderate skill on the part of the operator. The idea is a relic of a bygone age of surgery.[4] The pleural edge can easily be displaced by gentle gauze manipulation. My experience of the treatment of aneurysm and tumour at the root of the neck is confirmatory of this statement. The exception is the case of a malignant tumour to which the pleura is adherent. If the pleura is opened the opening should be closed and at the termination of the operation the air in the pleura should be aspirated so as to allow the lung to expand. In an operation on the heart of a dog this always has to be done, because in this animal the heart cannot be reached except by the transpleural route.

Baron Larrey's[5] case is of great interest because it is clear that it led him to experiment and to devise a new operation which anticipated Allingham's suggestion by about 90 years.

> Larrey's patient was a man, aged 30, who stabbed himself with a knife in the left side of the chest; the pericardium and the left lung were wounded, the knife had passed through the fifth costal cartilage and was still in the wound when he was brought to hospital. Frothy blood escaped in jets with each systole. The knife was withdrawn and the wound dressed with plaster; the patient tore off the dressing and it was reapplied. The pulse was rapid and there was grave dyspnœa. Bleeding gave some relief. Some improvement took place, but later on he became worse, and in great distress requested Larrey either to open his chest or to give him a narcotic strong enough to send him to sleep. Operation 45 days after injury, incision through skin and cellular tissue in fifth space below nipple, carefully carried deeper until pericardium felt. With the left index finger on the pericardium as a guide an incision into the pericardium was made with a bistoury, the finger inserted, and the apex of the heart felt. About a litre of fluid with some blood clot escaped. Great relief. In ten days the wound closed and the

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[1] Private letter from Sir T. Clifford Allbutt.

[2] Some cases are recorded in Mr. Stephen Paget's admirable Surgery of the Heart, 1896, and there are many others in surgical literature.

[3] Voinitch contributed in 1897 a careful study of the variations in the normal position of the anterior margins of the pleuræ, especially with reference to operation on the pericardium. His paper is illustrated by numerous figures. He finds that there is a triangle of safety, so that the sternal portions of the left sixth and seventh cartilages can be removed without any risk to the pleura. Lietopsis Ruskoi Khirurgia, 1897, p. 805, Fig. 88.

[4] "The artificial separation of the normal pleura is usually possible, and in pyopericarditis is always to be attempted by the surgeon in order that the underlying pericardium may be divided and the abscess material be evacuated without risk of pleural contamination. Delorme and Mignon maintain that fluid distension of the pericardium has little effect in displacing the median pleural reflection outward; but Glück and Curschmann take the opposite view. Drainage in children may be interfered with by infection of the anterior mediastinum." Eliot: Cases of Suppurative Pericarditis. Annals of Surgery, 1909, p. 60.

[5] Bulletin des Sciences Méd., vol. vi. (1810) and Clinique Chi. (1829), vol. ii.

symptoms recurred. Wound reopened with a probe, 4 oz. of pus escaped. Considerable improvement. Death 68 days after injury and 23 after operation. Autopsy: Suppurative mediastino-pericarditis.

Remarks by Larrey.[6]

"In pericardial effusion ...... I should carry out the operation at the most dependent point of the pouch formed by that membrane, and this point, which may be termed the seat of election, corresponds, as we have said, to the interval between the left side of the base of the xiphoid and the united ends of the seventh and eighth left costal cartilages. It is in this triangular cellular space that an oblique incision may confidently be made from the junction of the seventh costal cartilage with the sternum along its inferior border as far as the end of the eighth costal cartilage, which is closely united by fibrous tissue to the seventh costal cartilage. In this incision, which divides some fibres of the first digitation of the rectus and of the external oblique, is included the lamellar fibrous tissue which is continuous with that which is called the false layer of the peritoneum, on division of which the prominent point of the pericardium, appearing in the interspace between the first two digitations of the diaphragm, is encountered. The point of the bistoury carried carefully upwards and a little from right to left will enter the pericardium without opening the peritoneum. A small portion of the anterior border of the diaphragm is just cut as it is attached to the posterior surface of the seventh cartilage. No important vessel is met with.

"Thus this operation, easy to execute, is of all the methods the least likely to wound the heart, and offers the greatest chances of success."

He adds in a footnote:

"The patient should be seated on the edge of his bed and should have something to lean against, because in this perpendicular position the anterior border of the base of the pericardium is more inclined forwards, and in consequence more accessible to the instrument."

The advantages of the operation, according to Larrey, are as follows:—

1. At this point the inner surface of the pericardium is the further away from the heart, the greater the amount of fluid in the cavity.
2. The opening being dependent the fluid escapes more easily and without embarrassing the heart's action.
3. That if there are adhesions they are usually absent from the region of the diaphragm.

Larrey says that he has repeatedly tried this operation on the cadaver, and that it can be done with precision and ease. The idea of it was suggested to him by a case in which a man had accidentally suffered a similar operation. This case was a man aged 22, who with his right hand stabbed himself under the seventh rib in a direction upwards and a little to the left. There was a considerable hæmatoma and hæmo-pericardium. Larrey evacuated the blood serum by enlarging the wound and inserting a catheter which reached the heart, and after some vicissitudes the patient got well. Larrey had several bodies placed in the erect position and stabbed in a similar manner, and found that the knife in every instance entered the pericardium, so the method of operation he describes was evolved, but he does not seem to have had an opportunity of practising it.[7]

Allingham[8] describes what he called "the epigastric operation" for drainage of the pericardium. The details seem to be somewhat similar to those suggested by Larrey. Allingham makes his incision along the lower border of the seventh cartilage and then works through the costo-xyphoid space to the under surface of the diaphragm. The pleura is thus avoided and the peritoneum is in no danger. In some cases he says it is desirable to resect the sternal end of the seventh cartilage.

Trousseau[9] lectured on paracentesis pericardii. He recommends the use of the knife.

"I cut through the successive layers of tissue separating them by means of a grooved director. At last the point of the bistoury having penetrated a little too far some slight red serosity spurted along the blade." "I would make my incision in the fifth, sixth, or seventh space near the sternum. If it were necessary I should not hesitate to remove a cartilage so as to allow the pulp of the finger to reach the pericardium. It is necessary to be assured that there is sufficient distance between the heart and pericardium."

Trousseau relates the instructive case of *Roux*.

"Roux proceeded with extreme caution and made the opening by incision in preference to puncture; the result testified to his sagacity. When he reached the pericardium and introduced his finger into the wound he felt the heart beating and slight friction between it and the pericardium, without, however, detecting the slightest degree of fluctuation. The operation was suspended. At the autopsy there was found phenomenal dilatation (dilatation phénomenale), to use Dr. Vigla's expression, with attenuation of the walls of the heart; there were no valvular lesions and no serosity in the pericardium."

Delorme[10] and Mignon give the following directions for opening the pericardium. They systematised surgical knowledge up to the date of their paper.

1. Make a vertical incision from lower border of seventh cartilage to upper border of the fourth cartilage, 1 cm. external to left border of sternum.
2. Dissect off soft parts from ribs and cartilages for 1 cm. towards middle line and for two fingers' breadth outwards.
3. Disarticulate and resect a piece of fifth and sixth cartilage.
4. Carry the incision through intercostal muscles and perichrondrium down to triangularis sterni.
5. With a director worked parallel to posterior surface of sternum detach insertions of triangularis sterni, then introduce finger and completely detach soft parts from posterior surface of sternum. Then seek the pericardium just above the insertion of the cartilages into the sternum, and separate it with the finger from the cellular tissue which covers it; then, when its opaque surface is clearly exposed and its transverse fibres recognised, continue the separation through the whole extent of the wound. Thus the pleura and the internal mammary vessels are displaced outwards and not seen.
6. Pick up the pericardium with the forceps and incise it.

2. PARACENTESIS OF THE RIGHT AURICLE AND VENTRICLE.

These are, I believe, dangerous and freak operations. No more benefit, it would appear, can be derived from their performance than by a free venesection from the external jugular vein. In cases of overloaded right heart many of us must have witnessed the relief given by the taking of two pints of blood from this vein.[11]

The hollow needle for puncture of the right auricle is introduced in the third right costal space close to the sternum. To puncture the right ventricle the needle is introduced in the fourth right intercostal space, 1 inch from the sternum. Suction is necessary in the case of the auricle in consequence of the low pressure in that cavity. Such operations are desperate remedies, but so also, it is only fair to add, is the condition of patients for whom such remedies would be thought of.

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[6] Clinique Chirurgicale, vol. ii., pp. 303 et seq.

[7] The operation is described in Monod-Vammet's work on Operative Surgery, 2nd edition, 1907, vol. ii., p. 988.

[8] THE LANCET, 1900, i., p. 693.

[9] Vol. iii., edition 1868, New Syd. Soc., pp. 366, 394, and 384.

[10] Revue de Chirurgie, 1895.

[11] Dr. Sloan's case (1894) is of great interest (but in his patient the heart had ceased to beat). "I plunged the needle of an aspirator through the fourth space, half an inch to the left of the sternum, 10 ounces of pure blood flowed rapidly into the bottle. As I was slowly withdrawing the cannula the heart made first a feeble irregular movement, then gave a sudden strenuous jump, and finally, like a pendulum regaining its swing or a runner his stride, it started to beat again in the race for life." She slowly recovered and was restored to health. (Trans. of the Med. Chir. Soc. of Edinburgh 1894–5.)

3. OPERATION FOR AIR EMBOLISM OF THE HEART.

The suggestion has been made that the pulmonary artery should be clamped and that the air should be aspirated out of the two branches of the pulmonary artery on the same principle which led Trendelenburg to operate for obstruction of the pulmonary artery by clot.

When I was in Leipzig before the war Trendelenburg demonstrated his operation, and I have since several times practised it on the cadaver. The second left cartilage and a portion of rib is removed, the internal mammary artery tied, the pleura pushed away, the pericardium opened, and the circulation through the aorta and pulmonary artery arrested. The pulmonary artery is then incised and the clot removed by means of forceps. The aorta and pulmonary artery must not be obstructed for more than one and a half minutes. The operation of incising the pulmonary artery, removing the clots and clamping the opening in the pulmonary artery, can be accomplished in 40 to 45 seconds.[12]

4. CARDIAC STIMULATION FOR ARREST OF MOVEMENT OF THE HEART.

An epigastric incision is the quickest route to the heart, though several other routes have been recommended. Speed is an essential factor; massage must be commenced without any delay. The heart is held through the diaphragm near the apex by the thumb and finger and the ventricles compressed rhythmically from 30 to 40 times a minute.

Ricketts[13] reported 39 cases. Of these the heartbeat was permanently re-established in 12 (34 per cent.). In one of the successful cases the heart function had ceased for 20 minutes before it was re-established. The ages of the successful cases varied from 22 to 65 years.

Many other methods of cardiac stimulation have been proposed, but none can compare with the above in safety, in rapidity of execution, or in the success which has attended its employment. Crile has combined massage with arterial infusion towards the heart. I witnessed at Cleveland an experiment in which a dog's heart commenced to beat 30 minutes after death. Crile caused blood from another dog to flow down the carotid towards the heart, an anastomosis having been done between the carotids of a living and the dead dog. The dead dog recovered; indeed, in 20 minutes it was running about as if nothing had happened. Crile told me that if a dog was revived after 40 minutes of death its moral character was altered.

5. CARDIOLYSIS.

This operation, designed to free the heart from the rigid chest wall in front, especially when its action is hindered by adhesions, and to relieve an enlarging heart from the compression of a too confined space, is an admirable operation in selected cases. It has been proposed that adhesions between the parietal and visceral layers of the pericardium should be separated surgically (Delorme (1898) and Weill of Lyons (1895)). Also, in 1909, Leriche[14] considered the operation justifiable, but suggested excision of pericardium as better. Neither of these operations has been performed, and the possible utility is not apparent, for if adhesions were separated they would soon form again.

For mediastino-pericarditis, when the heart's action is hindered by adhesions, two, three, or more costal cartilages are removed. The first operations of this kind were done in 1902 by Peterson and Simon at the suggestion of Brauer.[15] Thorburn,[16] of Manchester, discusses the question and gives a table of 15 cases collected from literature. He gives one case done by himself, and refers to two others operated on by Stabb at the instigation of Alexander Morison.[17] Morison refers to a similar operation done for him to make room for an enlarging heart in a case of aortic stenosis. He suggests the same operation for mediastinal tumour, especially when the heart is interfered with.

Thorburn's cases number 18; of these, 6 cases were greatly relieved by the operation and in others the results were encouraging, but the exact details in some were not recorded.

6. OPERATION FOR INJURY OF THE HEART ITSELF: CARDIORRHAPHY.

A. *Some general considerations and statistics.*—Bullets or other foreign bodies[18] may lodge in the pericardium. They may be free or fixed to the pericardial wall or external surface of the heart. They may produce signs and symptoms or may remain for years in the pericardium inert and without being the cause of any bodily disturbance. The pericardium and heart have been wounded in various ways and by various missiles. The wound may or may not perforate the heart. Sharp-pointed instruments may or may not carry infection; bullets or metal fragments usually do. The operator may diagnose a wound of the heart, but subsequently a wound only of the pericardium, possibly associated with a superficial wound of the surface of the heart, may be found, or a wound of a coronary artery or of one of the great vessels may be present. In each of these cases blood will occupy the cavity of the pericardium. It must not be forgotten that hæmopericardium may be due to hæmorrhage from a vessel of the pericardium, and there may be no other source of bleeding.

With the filling of the pericardium with blood under pressure a great emergency in surgery arises. The auricles are compressed and signs of venous obstruction appear; there is great dyspnœa and cyanosis. The respiration is laboured and shallow and the pulse small, rapid, and of low tension. It is urgent freely to open the pericardium and to *decompress* the heart.

If the operation is performed at a later stage the pericardial sac will be distended, as in old hæmatomata, with a dark fluid, composed of serum secreted from the pericardial wall, old blood and some fresh blood. Again, as in my case, there may be no excess of fluid in the pericardium, and no appearance of sepsis. When infection has taken place before operation, or follows the removal of a bullet, the sac will contain purulent fluid. In some of the war cases the virulence of the infection was a marked feature.

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[12] Ballance: Resources of Surgery in Certain Emergencies, THE LANCET, 1912, i., 139.

[13] Amer. Med. Assoc., 1906.

[14] Lyon Médicale, 1909.

[15] Centralblatt f. Chir., 1903.

[16] Brit. Med. Jour., 1910, i., 10.

[17] THE LANCET, 1908, ii., 7.

[18] Salamoni (1901) collected 91 cases of foreign bodies in the heart which had entered the heart through the chest walls, chiefly the pericardial region. Of these, 40 recovered and 51 died. Quoted from Matas.

The complication of a wound of the pericardium or of the pericardium and heart with a wound of the pleura, or pleura and lung, is frequent. There will then be besides hæmopericardium also hæmothorax and probably hæmopneumothorax. These complications only clinch the necessity for immediate action on the part of the surgeon. During the war massive hæmothorax has been best treated by widely opening the thorax and removing clots and blood. In hæmopneumothorax the condition of urgency is greater in consequence of the danger ensuing from displacement of the heart. The collapse of the lung is an important factor in the control of hæmorrhage from a lung wound. Any way, whether the bleeding threatening life is external or internal, the surgeon's first duty is to stop it.

The heart.—Sudden death from heart failure occurs from many causes, and among these are perforating and non-perforating wounds. Injury to the muscular bundle of His causes rapid death. A wound of an auricle is said by some to be more fatal than a wound of a ventricle, as the walls are thinner and have less tendency to close. A wound of the right ventricle bleeds more or less continuously, while a wound of the left ventricle may bleed intermittently. In my case the bullet nearly passed through the wall of the right ventricle, but its base was fixed in the inner part of the wall, so that there was probably no bleeding into the pericardium from the cavity of the ventricle. An aneurysm may form at the site of a cardiac wound as in any other part of the arterial system from the giving way of the scar tissue. At a later stage the sac may rupture and sudden hæmopericardium will result.

The following tables give the statistical results of Fischer, Borchardt, Rehn, Vaughan, Peck, and Pool.

Georg Fischer[19]*: Statistical Results before Operative Interference was Attempted.*

Punctured wounds	44	Gunshot wounds	72
Incised wounds	260	Crush of chest	76
Total		452 cases.	
Right ventricle	123	Interventricular septum ...	7
Left ,, ...	101	Entire heart	16
Both ventricles	26	Right side of heart	4
Right auricle	28	Left ,, ,, ...	5
Left ,, ...	13	Coronary artery	2
Apex	16	Unspecified	57
Base	3	Pericardium	51
Total		452 cases.	

In 47 cases foreign bodies were found in the heart: Needles, 18; bullets and shot, 13; various, 16.

Of the 452 cases—

Recoveries.		*Deaths.*	
Heart wounds	50	Within a few minutes	104
Pericardial wounds	22	Later	219
	—	Time not stated	57
Total	72		—
		Total of deaths ...	380

In the pre-operative period 85 per cent. died and 15 per cent. recovered. The 15 per cent. include needle puncture, from which the mortality is not great.

In Borchart's[20] list of 78 cases of operation there were 39 deaths, 21 of which were due to sepsis.

In Rehn's[21] list of 124 sutured cases the left ventricle was wounded in 55, the right ventricle in 50, the left auricle in 3, and the right auricle in 4; 15 of the cases were gunshot wounds, and of these 6 recovered. Suture of the left ventricle, according to Rehn, is more successful than suture of the right ventricle. This list of 124 cases shows 40 per cent. of recoveries. The great majority of the fatal cases were due to hæmorrhage or sepsis.

Vaughan[22] gives a list of 150 cases of suture of the heart of man. Of these 98 died, 44 died after the first 20 hours, mostly of infection. Of 133 patients in whom the situation of the external wound is known 130 were on the left side, including 52 through the fourth space and 36 through the fifth space.

Of 140 cases in which the weapon was indicated 16 were caused by bullets; 7 recovered, or a mortality of 56 per cent. Of 142 patients—

The left	ventricle	was wounded	in	68	cases.
,, right	,,	,,	,,	68	,,
,, left	auricle	,,	,,	4	,,
,, right	,,	,,	,,	4	,,

2 had each 2 cavities wounded, 1 both ventricles, and 1 right auricle and right ventricle.

From an examination of the statistical results Vaughan says: "The lesson taught is to do away with drainage."

Peck[23] reports a case of wound and suture of the right auricle. The patient was a girl of 24 and recovered. In this case the heart tamponade had been extreme. The pulse returned immediately the incision in the pericardium was made and 300 c.cm. of dark blood escaped. The tension in the pericardium was great and the blood escaped in a gush. He says that of the 11 reported cases of auricle wounds operated upon, 7 have recovered, a mortality of 36·3 per cent., while the general mortality is about 64 per cent. The consequences of hæmopericardium is to render diastole difficult and aspiration insufficient, whence a progressive and dangerous weakening of the blood pressure.

Peck, combining the statistics of Lenormant, Rehn, and Vaughan, gives 161 cases of suture of heart.

Wounds of right ventricle	69	with	48	deaths.
,, left ,,	74	,,	45	,,
,, ,, auricle	5	,,	2	,,
,, right ,,	6	,,	2	,,
Multiple wounds	7	,,	5	,,
	—		—	
Total	161		102	

Thus more than a third of all the cases recovered.

Pool[24] says the immediate results of non-operative treatment are very poor as compared with those obtained by operation. Moreover, although some heart wounds heal without surgical intervention, there is always danger of secondary hæmorrhage from an unsutured wound, and the spontaneously healed heart wound, even a non-perforating one, leaves a weak scar which may rupture or become the site of aneurysm. Loison, as early as 1899, collected nine such cases.

Pool gives a table of 77 cases of heart suture reported in 1909, 1910, and 1911, including earlier cases not previously reported; these supplement the tables published by Peck in 1909, and bring the total up to 236.

The transpleural exposure with long intercostal incision is recommended especially because in a large proportion of heart wounds the pleura is already opened. An extrapleural operation is possible in exceptional cases. Fine vaselined silk on a curved intestinal needle is the best material for heart suture. The pericardium should be closed with sutures. Pleural drainage as a prophylactic step is unnecessary and harmful. It is noteworthy that in Pool's case, as in mine, large quantities of clear fluid escaped at the first dressing.

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[19] Langenbeck's Archiv, vol. ix., 1886, p. 608.

[20] Sammlung Klinische Vorträge neue Folge Chirurg., No. 113-114, 1906.

[21] German Surgical Society, 1907.

[22] Journal of the American Medical Association, vol. lii., February, 1909.

[23] Annals of Surgery, vol. l., p. 100.

[24] Annals of Surgery, vol. lv., 1912, p. 485.

Pool's paper was published in 1912. Between that date and the Great War (August, 1914) there were more than 75 operations on the heart. The mortality of these operations has been slowly decreasing since 1896. I think that the death-rate before the war may be put at about 45 per cent. Adding the cases during the Great War, which number over 60, we have a certain total of at least 380 operations on the heart. Since the performance of Farina's operation I have no doubt, however, that there have been many more than 400 operations on the heart to the present date. Many cases, especially the fatal ones, have not yet been published. Of 58 war cases of which I have notes 44 recovered and 14 died—a wonderful record! The French surgeons seem to have been very successful in these heart operations.

Hartmann's case:

Soldier, wounded at Bapaume, August 27th, 1914, and taken prisoner by the Germans. Very slight symptoms at first. In February, 1915, pain, palpitation, and dyspnœa. In August much worse; frequent heart attacks with sensation of impending death. X ray examination showed bullet in heart. Sent to Switzerland, where he stayed till February, 1917. After being in various hospitals he reached Paris, April 7th, 1917. Operation: Excision of 10 cm. of fifth cartilage and rib from sternal junction. Pleura opened. Projectile could be felt through pericardium; 6 cm. of fourth cartilage and rib excised to give more room. Heart's apex adherent to diaphragm by a band as thick as the index finger. When this was cut through heart could be lifted up. Then incision and extraction of ball from wall of right ventricle. Suture without drainage. Recovery.

Jenckel's case:

The bullet was embedded in the posterior wall of the right ventricle. Operation was done six months after the injury, but had to be abandoned because the heart could not be brought forward enough to expose the posterior surface of the ventricle; the patient recovered. After waiting six months Jenckel operated again, and this time succeeded in removing the bullet, and the man made a good recovery.

Beaussenat's case:

Soldier wounded at St. Hubert, Oct. 1st, 1914. Operation Sept. 17th, 1915. Bullet in right ventricle. Recovery.

During the war there have been several cases in which a bullet has been expelled from the ventricle of the heart. In 1916 Deneke removed successfully a bullet impacted in the right axillary artery. It came as an embolus from the left ventricle. It had been seen in the ventricle and afterwards was located again by the X rays in the axillary artery. In another case the bullet was lodged in the right subclavian artery and was removed through an incision made in the vessel, but the soldier died of sepsis and hæmorrhage; arteriorrhaphy was performed after removal of the bullet.

B. *The operation.*—There are three types of operation which are suitable in these cases. Much depends upon whether the external wound has to be enlarged or not, and whether the pleura and lung have been injured.

1. *The Delorme-Mignon-Kocher Operation.*

When the surgeon can ignore the external wound he will be likely to choose the Delorme-Mignon-Kocher incision over the pericardial region. A square flap of the soft parts is reflected outwards, the fourth, fifth, and sixth cartilages are removed, the internal mammary artery ligated, the triangularis sterni dissected away, and the edge of the pleura and lung retracted by gauze. The pericardium is then exposed, and should be divided so as to get as large an opening as possible.

I dislike the chondro-plastic flap of Kocher; such an operation in the desperate circumstances of a heart wound appears to be out of place. What does it matter that there is a gap in the chest wall afterwards if the patient recover? Further, a chondroplastic flap means that a dead space is left at the close of the operation under the flap which might determine the onset of sepsis.

2. *The Spangaro Operation.*

Spangaro makes a long incision in the fourth interspace and then divides or disarticulates the fourth and fifth costal cartilages at their union with the sternum, and in some cases also the sternal ends of the third and sixth cartilages may be divided. The fourth and fifth ribs are then forcibly drawn apart by a rib spreader and a fine view of the pericardium, pleura, and lung obtained. Not only by this method can the pericardium and heart be thoroughly explored, but the pleura and lung come under observation too, and the injuries of all are exposed in such a way as to make thorough surgical treatment easy and simple. The fifth intercostal space may be chosen if the surgeon prefers, and he will certainly do so if the wound is in this space. In a large proportion of heart wounds the pleura is opened, and in these the Spangaro operation is to be preferred. When the Spangaro operation is chosen the boundary of the pericardium on the left side back to the posterior surface can be brought fully into view. This allows, therefore, of an incision being made in the pericardium which will effectually drain the cul-de-sac of Haller.[25]

3. *The Duval Operation.*

Some of the French surgeons expose the heart by a *median thoraco-laparotomy* (P. Duval). A paramedian incision is made from the level of the third cartilage to a point midway between the xyphoid and the umbilicus. The abdominal cavity is opened and the diaphragm incised. The sternum is cut through below the third cartilage and split longitudinally for the rest of its length. The halves of the divided sternum are then forcibly separated and a wide exposure of the pericardium results. Some of the French successes during the war have been obtained by this method.

To sum up, the cardinal point to bear in mind is that the organs that have been wounded must be widely exposed. It does not matter what type of operation is chosen by the surgeon as long as this fundamental principle is not departed from.

4. *The Wound of the Heart.*

The wound of the heart may or may not be bleeding. If there is no serious bleeding the blood and clots can most readily be removed from the pericardium by pouring into the sac sterilised warm salt solution. The traumatism of sponging should be avoided. The cavity can be afterwards dried with gauze. The anterior surface of the heart is next inspected, and if no injury is visible a suture should be passed through the apex. The apex is then drawn forwards, so that the posterior surface of the heart can be inspected and palpated. This displacement of the heart does not disturb its action in any way. "The heart is not the delicate organ it was once supposed to be. it has an enormous capacity to withstand mechanical insult."[26]

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[25] Poirier and Charpy's Traité d'Anatomie Humaine, 1912, T. II., F. II., p. 163. Known by English anatomists as the oblique sinus.

When the wound is found, interrupted sutures should be applied in the usual way. The case is otherwise when blood is rushing from the heart and no view of the wound is visible. Matas describes these circumstances as "imposing," and no doubt they are, but chiefly so because of one's want of experience. The surgeon having this job in hand will take it all in the day's work, and just as he plunges his hand into the abdomen into a mass of blood in a case of ruptured spleen, or in a case of ruptured tubal gestation and seizes the bleeding spot, so he will now plunge his hand into the pericardium and seize the heart, and, by digital compression, control the hæmorrhage, and proceed to suture the wound. I once in a case of ruptured innominate aneurysm blocked the lumen of the vessel with my finger till it was possible to pass a ligature around it just above the arch of the aorta, and I imagine the procedure in hæmorrhage from the heart would be of the same character.

When the cardiorrhaphy has been completed the pericardium is to be sutured. If drainage is desired indiarubber tissue should be used. Gauze acts like a cork, and there are obvious disadvantages and dangers in the use of a rubber tube. When there is profuse suppuration the edges of the opening in the pericardium should be stitched to the skin.

5. *The Removal of a Foreign Body from the Heart.*

Supposing the foreign body has been found to lie in one of the ventricles, a fixation stitch is passed through the apex; the heart is held in the left hand and the line of incision for the extraction determined on. A few Lembert sutures are now applied along the proposed line of incision, so that they may be drawn tight as soon as the foreign body is removed. The loops of these ligatures are pulled out of the way, the incision made, forceps introduced, and the bullet extracted. It is just as the bullet comes out that a rush of blood will be likely to escape from the heart, but this can be limited by the pressure of the thumb of the left hand on the ventricle just above the line of incision. The pulling of the Lembert sutures tight immediately arrests the bleeding. It is only when the blood escapes that the blood pressure falls; during all the rest of the manipulation the heart does not appear to be incommoded at all.

The story of the wanderings of foreign bodies and bullets in the vascular system of man is very remarkable. A bullet may perforate the heart or aorta without causing fatal hæmorrhage. The hepatic vein or vena cava may be traversed so that lodgment will take place in the right ventricle, or a pulmonary vein may be perforated so that the bullet is carried into the left ventricle. A bullet may wander along the great arteries till its progress is arrested by the diminished size of the artery. Further, the bullet may be ejected from the right ventricle into the pulmonary artery, or from the left ventricle into the aorta. A round bullet may remain loose in the ventricle and be whirled about by the blood current. All those events have been graphically described by Sir John Bland-Sutton,[27] and Dr. A. Fullerton[28] described a case in which a bullet was ejected from the right ventricle into the upper, main branch of the right pulmonary artery.

Radiography is of immense value in accurately locating metal fragments in the heart and elsewhere in the chest, but in certain very urgent cases the operation must be commenced in consequence of hæmorrhage or pressure of the blood in the pericardium before radiography can be used. When this happens and circumstances permit, the fluorescent screen should be employed to assist the operator during the course of the operation in the location of a bullet.

6. *The Wound of the Pleura and Lung.*

All blood must be removed from the pleura. The lung will be collapsed and there will probably be no bleeding. If there is a serious lung wound a few stitches may be desirable, but the wound should first be explored for the presence of a foreign body; such might be found and removed either in the pleura or the lung. I did not experience any case during the war of secondary hæmorrhage from the lung in cases of hæmothorax and hæmopneumothorax after the clearing away of clots and blood from the pleural cavity; so this supposed danger need not be considered. At the close of the operation the opening in the pleura should be closed. It is seldom necessary to aspirate the air from the pleural cavity; it is well to leave a wounded lung at rest for some days. Drainage of the pleural sac is generally advised, because the bullet or dagger is likely to have introduced infection into the wound; but this is a matter for the individual surgeon to decide at the time. The modern method of maintaining the expansion of the lung during operation might be of service in some cases, when the lung is not bleeding and where the urgency is not too great for the requisite preparations to be made.

The following case recorded by Launay[29] of recovery after suture of two revolver bullet wounds of heart is a good example of the value of the operation of suture of the heart.

Man, aged 26. Suicidal revolver wound. There were hæmopneumothorax, hæmopericardium. A wound both on the front and the back of the left ventricle was sutured by Launay. Both pericardium and pleura were drained. Recovery followed without serious complication. The bullet was retained; X ray examination showed it was lodged in front of the vertebræ.

Observations of Rehn and Zesas respecting Operations on the Heart and Pericardium.

Rehn[30] says:—

Needles should be at once removed, larger objects, such as broken pieces of knives, daggers, &c., not until the heart is freely exposed, or at least not until all preparations are made to operate forthwith. In apparently moribund cases the heart sometimes begins to beat again directly the pericardium is incised; so that an operation begun without anæsthesia has to be continued under an anæsthetic. All cases of injury with symptoms of heart compression require at least incision of the pericardium. We cannot know whether it is a perforating wound of heart or a wound of the coronary artery. We only know that it is our duty to operate. No single method of operation is applicable to all cases. Preservation of a bony covering to the heart is the least important matter. In every case it is better to resect several ribs than to make a large flap of bone, cartilage, and soft parts. The pleura seldom escapes injury in wounds of the heart. It is not always possible to operate extrapleurally. Commence by intercostal incision in situation of wound; if there is no wound operate in the fifth space. If hæmothorax or pneumothorax is already present go straight through into pleura, seize lung and displace it outwards. If not enough room make a second incision in middle line, detach cartilages from sternum, and retract ribs and soft parts upwards and downwards.

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[26] Wabasse: Surgical Treatment, vol. ii., p. 427, 1918.

[27] THE LANCET, 1919, i., 773.

[28] THE LANCET, 1919, i., 913.

[29] Gaz. des Hôpitaux, vol. lxxv. (1902), No. 93, p. 926.

[30] Archiv für Klin. Chirurgie, vol. lxxxiii.

Zesas[31] expresses the opinion that removal of foreign bodies in the heart is always indicated. In 118 cases 96 were through the chest wall, 12 came from the alimentary canal, 4 by way of blood stream, and 1 from the air-passages. There were needles in the heart in 54 cases, bullets in 38. Besides these, nails, thorns, iron pegs, splinters, and hairpins have been found. Hoch found a nail embedded in the heart of a man who died of unrelated disease. In Manteuffel's case, after the wound of entrance was sewn up on the anterior surface of the right ventricle, the bullet was removed by an incision of the posterior surface. The patient was a woman aged 21 and made a good recovery.

(To be concluded.)

EXPERIENCES OF
MALARIA IN THE EGYPTIAN EXPEDITIONARY FORCE.

BY PHILIP MANSON-BAHR, D.S.O., M.D., M.R.C.P.,
BREVET MAJOR, R.A.M.C.; ASSISTANT PHYSICIAN, ALBERT DOCK HOSPITAL; AND LECTURER, LONDON SCHOOL OF TROPICAL MEDICINE; LATE OFFICER IN CHARGE OF MALARIA STATIONS, E.E.F.

THE following summarised account of malaria in the E.E.F. deals mainly with epidemiological points of interest, the mechanism for microscopic diagnosis on a large scale under active service conditions, and the gross pathology of the pernicious cases, in so far as it has a bearing upon treatment. These observations have been made whilst serving with the Force during the last three and a half years. I divide my observations into two portions, the first of which concerns Egypt and the Canal Zone, the second Palestine.

The malarial fevers in both these regions are caused by two species of parasites—the benign tertian and the malignant or subtertian. The quartan, on the other hand, would appear to be almost non-existent in Egypt and to occur but rarely in Palestine.

Malaria in Egypt.

During the summer of 1916 but few cases of malaria were seen; those from the Delta were all of the benign variety, but one fatal unrecognised malignant case from Ismailia came under my notice.

1. *The Canal Zone.*—In August and September, 1916, I was investigating malaria in the southern sector of the Canal Zone, and collected notes of 100 cases among British troops, all fresh infections contracted in that zone of operations.

The special points to note were:—

(*a*) No fresh infections were recorded before the first week in June.

(*b*) Malignant malaria did not commence till August and reached its maximum in September.

(*c*) The difficulty in recognising malignant malaria from a clinical point of view. There were three fatal cases, all of which had been primarily diagnosed as sunstroke.

(*d*) The scantiness of the malignant parasites in the peripheral blood in the early stage of the disease and their tendency to cling to the edge of the red cell (accolée forms); this renders their detection more difficult.

(*e*) The relative scarcity of anopheles. The most abundant species were *Cellia pharoensis*, *A. turkhudi*, *A. mauritianus*.[1] The former two species bred in the borrow-pits in the vicinity of the Sweet Water Canal and in the "seepage" water derived from the subsidiary channels, but, owing to the large numbers of surface-feeding fish, not in the canal itself. The latter bred in highly saline water in the vicinity of the Bitter Lakes. *Cellia pharoensis* is a well-recognised carrier of the benign parasite, while *A. mauritianus* has never been proved capable of acting as an intermediary. Experiments on actual transmission of the malignant parasite demonstrated the suitability of *A. turkhudi* to act as an intermediary, while *Cellia pharoensis* was proved to be but a vicarious transmitter of this disease.[2]

(*f*) Carriers of the malignant parasite were proved to exist amongst the wandering Bedouins, as well as the Indian troops and employés of the Suez Canal Company.

2. *The Fayoum* (Senussi campaign).—A number of cases of malaria occurred amongst the cavalry stationed in this western oasis in November, 1916. The existence of two malignant cases was established by a microscopical examination; the great majority were benign. The most abundant species of anopheles was *Cellia pharoensis*.

3. *The Western Oases* (Dahkla) (Senussi campaign).—The Dahkla Oasis, a notoriously malarial spot, was occupied by the mounted troops in December, 1916. In January, 1917, a number of subacute cases of malaria occurred amongst the troops ten days after their arrival in the oasis. Special points to note were:—

(*a*) The fact that malignant malaria could be transmitted during the winter season when the surface temperature of the sand at night-time was as low as 1° C.

(*b*) The mild nature of the cases and the scantiness of the parasites in the peripheral circulation; often rings were not found till the third day of the pyrexia. Many cases were not diagnosed by the presence of parasites at all, but by the rapid increase in the large mononuclear cells, which rose as high as 35 per cent. Absence of a palpable spleen in these early cases was also noted.

(*c*) The high rate of infection amongst the native population. The splenic index of the children under 14 was 96·4 per cent.; the parasite rate was 59 per cent., all parasites being of the malignant variety.

(*d*) The mosquito intermediary was *A. palestinensis*[3] (differentiated from *A. turkhudi* by the white tips to palpi). Large numbers of these insects were breeding in the warm springs (temperature 80° F.) which water this oasis throughout the winter.

(*e*) The liability of clinicians, in the absence of a microscopic diagnosis, to mistake mild relapsing cases of this nature for relapsing fever or enteric.

Malaria in Palestine.

During their progress across the Sinai Desert no indigenous malaria occurred amongst the troops. After occupying the line of the Wady Guzze a few cases of locally contracted benign malaria were

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[31] Fortschritte der Medizin, Band xxviii., No. 21, S. 649, 1910.

[1] In the desert on the eastern side of the Canal, where wells occur, as at Ayun Musa, the former two species were found breeding abundantly in the clear well water.

[2] Journal of the R.A.M.C., June, 1918, p. 606.

[3] According to Storey (Entomological Department, Cairo) it is possible that this species is merely a variety of *A. turkhudi*, while the Palestine form, or the true *palestinensis*, is distinct.

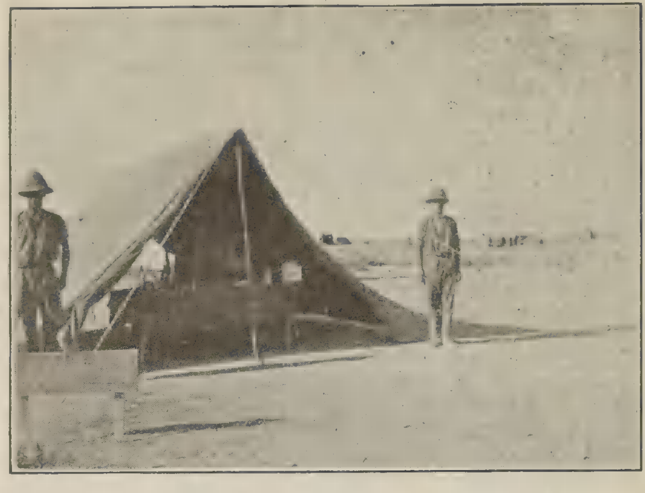


FIG. 1.—Type of malaria diagnosis station with equipment. One officer, two orderlies stationed in Jordan Valley. (July, 1918.)

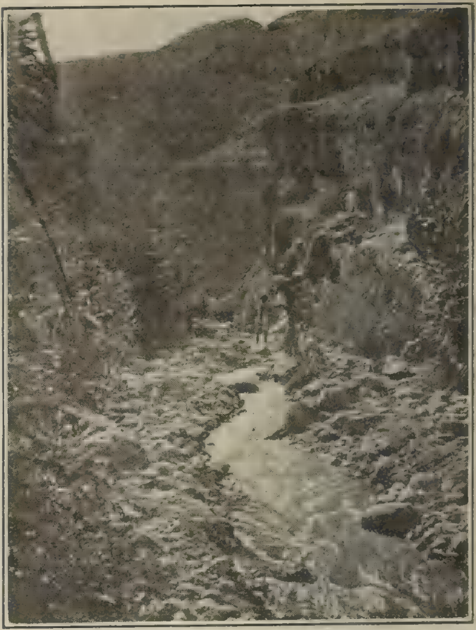


FIG. 2.—The Wady Quelt, Jordan Valley, showing canalisation of the stream, an effective anti-malarial measure.

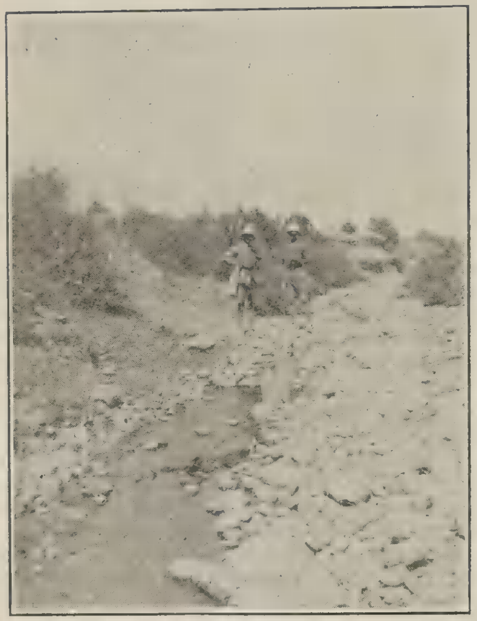


FIG. 3.—The lower reaches of the Wady Quelt in the Jordan Valley showing formation of typical mosquito-breeding pools.

FIG. 4.—The Kharga Oasis, a highly malarious locality with numerous warm mosquito-breeding pools. (January, 1917.)

Figs. 1, 2, 3, by kind permission of the Wellcome Bureau of Scientific Research. Fig. 4, by kind permission of Colonel J. M. McKenzie, O.B.E., R.A.M.C.

noted in August, 1917, but owing to the vigorous antimalarial measures taken they never reached any large numbers. In September a few malignant cases occurred with one death from coma. Once again the fact was impressed upon my mind that the nature of the illness had not been recognised till too late. Five cases with dysenteric symptoms due to malarial enteritis were seen, accentuating the necessity of distinguishing this complication from the more usual forms of dysentery.

1. *Experiences in 1917.*—Immediately after the successful military operations at Gaza in November, 1917, it became evident that the main body of the E.E.F. had moved forward into a highly malarial zone. From the available medical literature procurable dealing with this matter (Masterman, Huertemueller, Mühlens) it was ascertained that malaria, especially of the malignant variety, occurred along the whole zone from Jaffa to Jericho, and was apt to assume epidemic form during the autumn months, especially mid-October. In November and the early part of December a number of unrecognised and often fatal cases of malignant malaria occurred, and in the middle of December I performed six autopsies on cases with varying original diagnoses, such as debility and influenza. Such a large number of febrile cases occurred, all from two infantry brigades which were then holding the Auja line and which proved to be malignant malaria, as to warrant the suspicion that the infection had been locally acquired during the winter months. This was confirmed by subsequent work at Jaffa during January, 1918, and three more fatal cases occurred.

The main points noted in this connexion were:—

(*a*) The anopheles infected during the previous autumn appeared to be capable of conveying the infection during the winter to troops quartered in

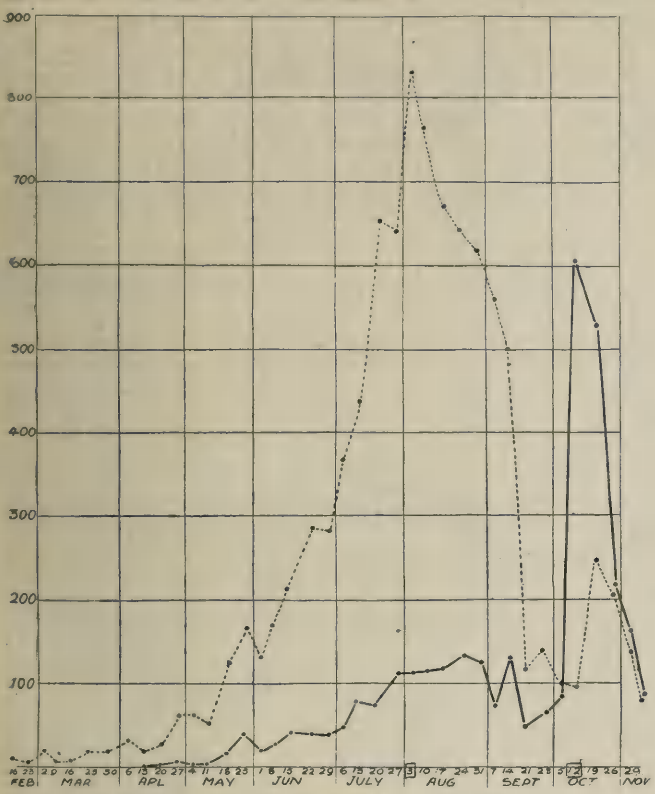


FIG. 5.—*Weekly Malaria Graph of the E.E.F. in Palestine, Western Sector of the Front (Jaffa to Ludd, 1918).*—This graph shows the epidemic of benign tertian malaria, beginning in June and reaching its maximum on August 3rd, 1918 (850 cases per week). *Anopheles maculipennis*, probably the intermediary host, appeared for the first time in large numbers on June 2nd, and extensive anti-malarial operations (draining of the marshes) were completed July 15th. The effect of these measures is well shown by the great fall which took place early in September. The epidemic of malignant tertian malaria follows later and coincides with the advance into enemy territory—i.e., the Plain of Esdraelon—which, being in Turkish hands, was unsanitated in the malarial sense. The maximum of this epidemic was reached on Oct. 12th (600 cases per week). These figures deal with fresh infections and not relapses.

These graphs have been constructed from 111,261 microscopic blood examinations performed by different military laboratories on this front within six months, of these 40,168 were undertaken by the six malaria diagnosis stations in the front line. The important dates are emphasised in brackets in the graph. The total force, British and Indian, employed comprised about 300,000 men. The dotted lines indicate benign, the continuous malignant malaria.

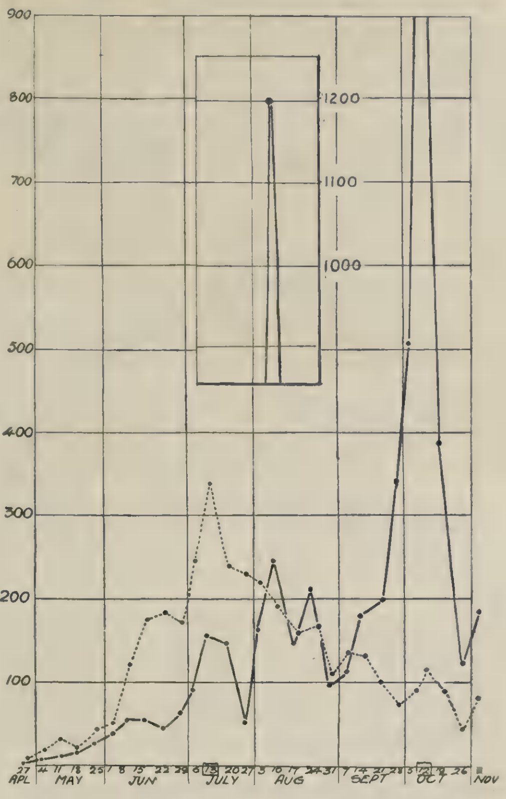


FIG. 6.—*Weekly Malaria Graph, Eastern Sector of the Front (Jerusalem to Jordan Valley).*—This graph shows a small preliminary epidemic of benign tertian malaria, reaching its maximum nearly a month earlier than on the Western side—i.e., July 13th. There is a tendency for malignant tertian malaria to predominate in the latter part of July and August, but, owing to the anti-malarial measures taken, it never assumed epidemic form. The great epidemic took place when the desert corps moved forward on the east side of the Jordan to Amman, and reached its maximum on Oct. 12th, after the occupation of Damascus (1200 cases per week). *Anopheles palestinensis* was the mosquito host and first appeared in large numbers about the middle of June and reached its maximum prevalence in October. These figures also deal with fresh infections. The occupation of Damascus was effected on Oct. 2nd, exactly ten days after the concentration at Beisan, where the actual infection was contracted. This period would appear to be the incubation period of malignant malaria.

native houses. The cases mostly came from two infantry brigades who successfully held the same portion of the line (Auja River) and occupied the same billets.

(*b*) Female anopheles (*A. bifurcatus*) were proved to be capable of laying ova during the winter season, and these ova were capable of hatching out and producing active larvæ in sheltered places, as in deep wells.

(*c*) The serious nature of the malignant infections. Three sudden deaths occurred a few hours after admission to hospital; autopsies were performed and large numbers of parasites demonstrated in the tissues. The alarming nature of these fulminating cases can hardly be realised. One man was found dead on the march after a halt, while two others died three hours after admission to hospital.

(*d*) The pleomorphic clinical forms which malignant infections could assume.

2. *Experiences in 1918.*—It became very probable that front line units would have to pass the greater part of the summer months in a highly malarial region, of which undoubtedly the worst areas were the Maritime Plain to the north of Jaffa and the tropical belt of the Jordan Valley.

It was realised that, though the incidence of the disease and the occurrence of pernicious and fatal forms could be minimised much by sanitary measures whilst the troops were stationary, yet the task was one of great magnitude, and the occurrence of a considerable number of cases could hardly be prevented in such a highly infected country; furthermore, that directly an advance was made further to the north sanitary precautions would become unavailing. The German statistics compiled in 1912 indicated that an epidemic of malignant malaria occurred in the autumn months, about mid-October (similar graphs have been recorded by Armand-Delille from Salonika).

Formation of malaria diagnosis units.—Realising that the safest plan in dealing with malignant malaria on a large scale consisted in early microscopic diagnosis, special mobile diagnosis units were formed, so as to ensure early diagnosis and early treatment. Six of these units, called malaria diagnosis stations, were formed, consisting each of one medical officer and two R.A.M.C. privates, who were given a month's special training in microscopic blood diagnosis and, when efficient, were distributed two to each corps. By the end of April, 1918, they were at work along the whole of the line. The equipment was of a portable and very simple character capable of being loaded on one G.S. wagon with four horses. The best form of portable tent for the purpose was found to be the I.P.G.S., 160 lb. The essentials provided were:—Tables, G.S., 3; forms, G.S., 3; lamps, hurricane, 3; microscopes, 2; and a supply of standardised Leishman's stain slides, distilled water, and spirit lamp. Central depôts for the further supply of reagents were formed at Ludd and Jerusalem.

The standardised Leishman's stain for issue to these units was prepared as follows:—Leishman's stain, 1 g. (Baird and Tatlock); Abs. methyl alcohol 200 c.cm.

The Leishman powder (1 g.) is placed in a glass mortar, 20 c.cm. of methyl alcohol are added, and the powder is ground down with a pestle until the alcohol is saturated. The fluid is now decanted off into a clean bottle and a further 20 c.cm. of methyl alcohol added to the residue in the mortar, which is again ground with the pestle until as much as possible is dissolved. The process is repeated, using successive fractions of methyl alcohol, until the whole of the powder is in solution. The volume is made up to 200 c.cm. finally with methyl alcohol, and 12 drops of a 1 per cent. NaOH solution are added and well shaken.

The method of staining adopted is as follows: The best portion of the blood smear is selected and marked off with a grease pencil. (The grease pencil marks confine the stain to that particular area of the slide, and when dealing with hundreds of films this practice effects a considerable saving of stain.) Raw Leishman's stain is dropped on to the slide by means of a pipette provided with a rubber teat; this is left for about 30 sec., the stain on the slide is now diluted with distilled water about 1 in 4 and left for a further 2–3 min. At the end of that time the stain is washed off with distilled water and the slides are arranged in a sloping position to drain and dry. The teat pipette was used throughout the process, both for adding the stain, for diluting the latter with distilled water on the slide, and for finally washing off. This method made for far greater economy of materials and cleanliness than would have been the case if a "drop-bottle" had been used.

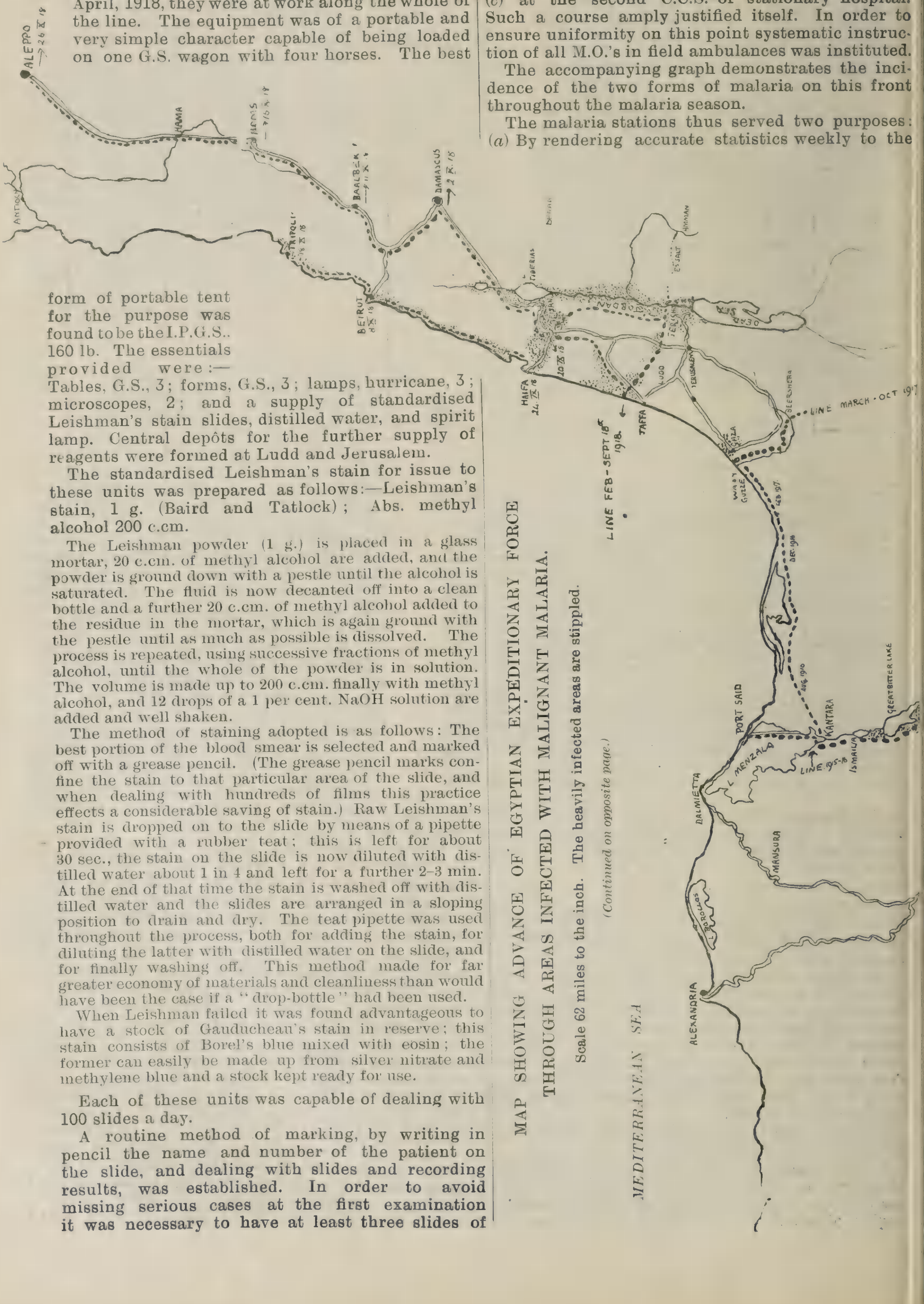
When Leishman failed it was found advantageous to have a stock of Gauducheau's stain in reserve; this stain consists of Borel's blue mixed with eosin; the former can easily be made up from silver nitrate and methylene blue and a stock kept ready for use.

Each of these units was capable of dealing with 100 slides a day.

A routine method of marking, by writing in pencil the name and number of the patient on the slide, and dealing with slides and recording results, was established. In order to avoid missing serious cases at the first examination it was necessary to have at least three slides of the same case examined at different periods before pronouncing a negative result. This was done (*a*) at the diagnosis station, (*b*) at the first C.C.S., (*c*) at the second C.C.S. or stationary hospital. Such a course amply justified itself. In order to ensure uniformity on this point systematic instruction of all M.O.'s in field ambulances was instituted.

The accompanying graph demonstrates the incidence of the two forms of malaria on this front throughout the malaria season.

The malaria stations thus served two purposes: (*a*) By rendering accurate statistics weekly to the



MAP SHOWING ADVANCE OF EGYPTIAN EXPEDITIONARY FORCE THROUGH AREAS INFECTED WITH MALIGNANT MALARIA.

Scale 62 miles to the inch. The heavily infected areas are stippled.

(*Continued on opposite page.*)

A.D.M.S.'s of the divisions and to the D.D.M.S. of the corps of the number of fresh infections occurring in different units, the type and *location* of the infection could be ascertained and steps taken accordingly; (*b*) ensuring, by early diagnosis, the *early exhibition of quinine by the intramuscular* route to all serious cases.

Classification of Clinical Symptoms of Malignant Malaria.

The experience gained of malignant malaria and the clinical forms it may assume can be classified as follows:—

I. *Pernicious or Rapidly Fatal Forms.*

(*a*) Cerebral (generally occurring in the summer).

Primary Clinical Diagnosis.	*Corresponding Clinical Variety of Malignant Malaria.*
"Sunstroke;" "heatstroke."	Comatose or delirious type, with hyperpyrexia.
"Mental derangement."	Maniacal type, with tendency to suicide.
"Epilepsy."	Epileptiform type.
"Cerebro-spinal meningitis."	Cerebral type.

(*b*) Abdominal (generally occurring in the winter).

"Dysentery," with blood and mucus.	Dysenteric type.
"Cholera" or "paracholera," with diarrhœic fæces and incontinence.	Choleraic or algide form, with subnormal temperature and collapse.
"Intestinal obstruction."	Condition due to gross infection of intestinal capillaries by malignant parasites.
"Appendicitis" or "cholecystitis."	Various forms of referred abdominal pain in malignant infection.

(*c*) Pulmonary (with pulmonary symptoms).

"Bronchitis"; "pneumonia"; pleurisy.	Malarial pyrexia, with pulmonary congestion and cardiac distress due to myocarditis. Pain over left hypochondrium, due to rapid enlargement of the spleen.

(*d*) Cases with skin lesions.

"Purpura" or "measles."	Septicæmic type of malignant malaria with multiple cutaneous hæmorrhages.

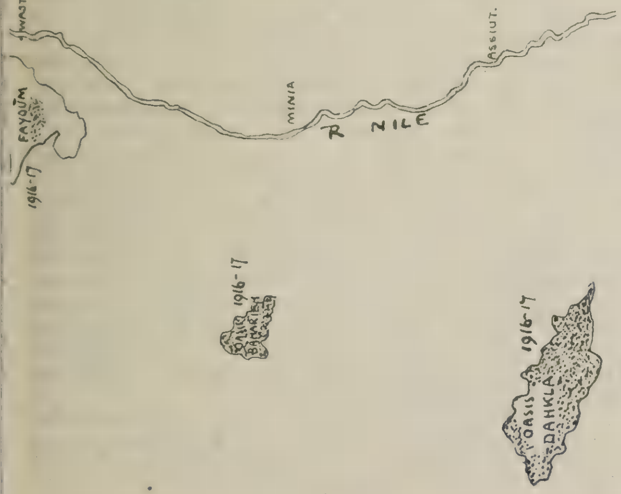
II. *Clinical Types of Average Severity.*

(*a*) Influenzal or myalgic.

"Influenza" or "rheumatism."	Pyrexia with joint pains.

(*b*) Enteric with steppage rise of temperature.

"Enteric," "sand-fly fever," "trench fever," "relapsing fever."	Splenomegaly with pyrexia.



(*c*) Icteric with bilious vomit.

"Jaundice" or "infective jaundice."	Bilious remittent form, with vomit of bile or "coffee grounds," remittent pyrexia, and hæmolytic icterus.

(*d*) Nephritic.

"Acute nephritis."	Albumin, blood, and pus cells in urine.

III. *Sequelæ.*

(*a*) Cachexia and anæmia.

"Pernicious anæmia," "leucocythæmia," "debility."	Enlarged spleen and great anæmia due to blood destruction.

(*b*) Blackwater fever (methæmoglobinuria).

"Hæmaturia."	Methæmoglobinuria and pyrexia.

In accounting for the comparatively high proportion of pernicious forms of malignant malaria in Palestine the probability of different *strains* of the parasite in different countries and their effect upon the human body must not be lost sight of. A similar analogy exists in the case of trypanosomiasis.

At the time of the advance on Sept. 19th/20th, 1918, the number of malignant tertian cases diagnosed by laboratories and diagnosis stations was, on a weekly average, 60 on the line Jaffa-Ludd and over 200 on that part of the line extending from Jerusalem to Jericho. At the beginning of October a very marked increase in the number of cases was noted, which reached its maximum in the week ending Oct 12th, when 1800 fresh infections were recorded. At the same time the clinical type of the disease was a very severe one, and there were many fatal cases. The diagnosis stations attached to the cavalry divisions were able to accompany them to Damascus. Their presence there was very necessary. A large number of serious cases developed soon after the occupation of that town and there was a tendency for medical officers to diagnose them on clinical grounds, especially from the associated diarrhœic symptoms, as dysentery. The majority of these infections appear to have been contracted in the plain of Esdraelon, and especially during the concentration around Beisan. The advance from this latter place to Damascus occupied 10 days—the incubation period of malignant malaria. The Anzac division operating on the right of the Jordan towards Es Salt and Amman also suffered heavily.

The situation was, moreover, complicated by the presence of the influenza epidemic, thus rendering a diagnosis of malignant malaria, without microscopic aid, almost an impossibility.

The Chief Points Summarised.

The following summary of the chief points in connexion with malaria in Palestine in the summer of 1918 may be given.

1. On the seaboard and the plain of Sharon the benign variety predominate, while east of Jerusalem the converse was the case, with a tendency for the malignant disease to assume epidemic form in the autumn months, especially mid-October. (M.T. malaria is endemic in the Jordan Valley; the splenic index of native children in Jericho was assessed as 65 per cent. and the parasite rate 54 per cent., mostly of the malignant type.)

2. The main mosquito intermediary in the benign tertian zone appears to be *A. maculipennis* and in Jordan Valley *A. palestinensis* (other anopheles found were *A. superpictus* (or *A. sinensis*), *A. fragilis* *A. bifurcatus*, and *A. turkhudi*)

3. The incubation period of malignant malaria in epidemic form is one of from 10–14 days.

4. The efficacy of early intramuscular quinine (gr. xii. in 2 c.cm. saline) early in the course of the disease. (A point to note in the distribution of quinine is that ampoules containing sterilised solutions of quinine should be supplied to front line units, while stationary, or general hospitals can more advantageously utilise sterilised solutions of quinine made up in vaccine bottles with rubber caps.)

5. The fatal nature of the infection if undiagnosed and untreated for a period of five days.

6. The most acute cases die of heart failure (apparently a toxæmic myocarditis), and therefore stand rapid evacuation badly.

7. The undesirability of intravenous quinine in acute cases with cardiac involvement: owing to the large numbers of parasites in the peripheral circulation it would appear that injection of large doses of quinine by the intravenous route destroys them with great rapidity, and in so doing floods the body with liberated malaria toxins which completely paralyse the cardiac mechanism.

8. The mechanism for early diagnosis and early treatment broke down on a rapid advance into a highly malarious country, with a consequent great increase in the number of fatal cases and pernicious infections.

9. The malignant tertian infection is much more amenable to quinine treatment than is the benign. This may sound paradoxical, but in the case of the former parasite it is a case of either kill or cure, and it is a remarkable fact that in Jordan Valley malignant infection relapses were not frequent. Very often a primary infection when treated early with quinine appeared to die out entirely. On the other hand, the benign infection, though amenable to quinine for the time being, relapses only too often in spite of it, and is therefore from a military point of view in many ways the greater obstacle of the two.

Bearing of the Pathology upon Treatment of Pernicious Forms of M.T. Malaria.

In the official returns for the whole force from May to end of December, 1918—i.e., eight months—the number of deaths proved to be due to malignant malaria was 853; of these, 75 were recorded during the first five months, and 773 during the last three—that is, subsequent to the advance into Syria.

The following is a summary of 67 consecutive post-mortems on malaria cases performed at Ludd during the period Oct. 1st to Nov. 8th, 1918.

Uncomplicated malignant malaria, 35.
Complicated by influenzal broncho-pneumonia, 32.

Of these *uncomplicated* M.T. malarias: (*a*) died in collapse with right heart failure, 24; (*b*) died with generalised hæmolytic icterus, 8; (*c*) died in coma with œdema of brain and blood-stained fluid in ventricles, 3.

In only four cases could parasites be demonstrated in the tissues, none of which had been adequately treated with quinine. There were four cases of terminal secondary infection with staphylococci, streptococci, and pneumococci. In no case had the diagnosis of malignant malaria previous to death been made without microscopic confirmation. Nor did any case come to autopsy in whom the infection had been missed during life after the adoption of the three-slide rule.

The first point to note is the evidence of a malarial toxæmia as against the hitherto accepted theory of a mechanical obstruction of the capillaries by the malignant parasite. For instance, no such obstruction could be substantiated in cases with cerebral involvement after quinine treatment. The œdema of the brain, the increase in the cerebro-spinal fluid suggest lumbar puncture as a means of alleviating urgent symptoms. (This was adopted by some clinicians with a fair amount of success.) The tendency to mental derangement[4] and suicide in malignant cases must be borne in mind. Heart failure has been mentioned and emphasises the paramount importance of *rest* in all malignant infections. The toxæmic cases with generalised hæmolysis indicate the close relationship between this type and blackwater fever, and consequently their treatment on similar lines.

It was demonstrated that three intramuscular quinine injections of gr. xii. each, on three separate consecutive days, cause not only a complete *temporary* disappearance of the parasite from the blood-stream, but also, after this amount had been absorbed, the size and condition of the spleen rapidly returns to normal. Therefore more frequent injections are not indicated in order to overcome the acute crisis of the disease. On the other hand, intravenous salines (1–2 pints) are indicated as a means of eliminating the toxins, and in cardiac cases in which there is engorgement of the right heart, abstraction of venous blood previous to this injection.

The adoption of this line of treatment was distinctly favourable in the few apparently desperate cases in which it was tried. Two German prisoners, for instance, who had remained comatose for two days in spite of quinine, recovered completely with intravenous saline without any further administration of this drug.

The Effects of Intramuscular Quinine upon the Tissues.

Observations were made at autopsy upon cases injected intramuscularly with quinine (quinine bihydrochloride gr. vi. to saline 1 c.cm.). Within four hours of injection, on incising the gluteus, a considerable serous effusion could be demonstrated in the muscle. Within 24 hours a superficial grey necrosis of muscular fibres was evident, but within the next few days these effects were no longer visible.

The effects of continuous injection at the same site were different; patches of necrotic tissue about the size of an almond, often communicating with other loculi of the same nature, could be demonstrated. Sometimes these cavities were occupied by blood clot, but more often by dead muscular fibres of a dark brown or greenish hue. *There was no evidence of pus formation.* Extensive necroses were most often observed when the injection impinged on the ilium itself. In one fatal case there was a generalised streptococcal infection of the necrotic tissue, probably of hæmic origin, as there was no evidence of any external infection obtainable.

The general indications are that continuously repeated intramuscular quinine injections in debilitated, anæmic, and emaciated subjects are to be avoided, if possible, as being liable to cause extensive necrosis of the muscular tissue. It must be remembered that the blood-forming mechanism of the bone marrow is inhibited by the malarial toxins and renders the body more liable to secondary infections of all kinds.

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[4] Three cases which came under observation were so odd in their behaviour that they had been regarded by their regimental officers as men whose minds had become deranged by the stress of battle.

The suggestion is that greater dilution of the quinine for intramuscular injection would be followed by better results, but this is hardly practicable in the routine treatment of so many cases in C.C.S.'s on a large scale.

The moral of all this is that intramuscular quinine judiciously administered has its distinct beneficial usage, but it is open to *abuse.* There is no advantage in making one's patients' buttocks into pincushions, and one should remember that it is worse than useless to continue exhibiting quinine by this route after the parasites have disappeared from the circulation. One must treat one's patient, as well as destroy his parasites. The lesson is that a few injections of quinine are capable of destroying all the parasites in the spleen and of reducing that organ to normal size.

Defects of Scheme for Early Diagnosis and Treatment of Malaria in Palestine in 1918.

The main defects in the scheme I have outlined are that provision for diagnosis was not sufficient to meet the needs of the moment on such an extensive and rapid advance into enemy territory as that of September, 1918. The difficulties of continuous supply of the diagnosis units 200 miles from the base were considerable, nor was it possible for them to examine slides for field ambulances scattered over so wide an area.

Remedies Suggested.

That each field ambulance in an Eastern theatre of war should have on its strength one medical officer specially trained in the microscopic diagnosis of malaria. His equipment need be very simple and consists of a microscope and minimal requirements of slides, stains, &c. Attached to him there should be an orderly specially trained in this microscopic diagnosis, in which it has been proved that an R.A.M.C. private of average intelligence can become expert after a month's continuous training.

That to each corps there should be attached one expert pathologist to supervise the scientific work of these officers. That he should be provided with a Ford box-car fitted up with cases containing spare microscopic parts, Leishman's stain, slides, distilled water, spare hypodermic syringes, syringe needles, and quinine ampoules. He should be so situated as to be able to supply any deficiencies at a moment's notice and, at the same time, to be very mobile.

That a uniform method of recording results and quinine treatment upon field medical cards should be adopted. These should be stamped in indelible ink and different symbols for the designation of malignant or benign infection utilised. When written on in pencil, as is so frequently the case, the *primary diagnosis*, which is so important, is apt to be rubbed off as the patient is evacuated down the line.

It is most important, and I do not think this is sufficiently realised, that a primary microscopic diagnosis once made must be adhered to.

Advisability of Adopting a Standard Method of Differentiation Between the Parasites.

It is suggested that standard rules for the differentiation of the two main forms of parasite be adopted. The main points are that the benign tertian parasite invariably enlarges the red cell which it inhabits. This is a much safer rule than the presence of "Schüffner's dots," which are not invariably present in early infections. On the other hand, the points of importance in connexion with the malignant parasite are: (*a*) Its smaller size; (*b*) no alteration in size of red cell; (*c*) tendency to multiple invasion of same red cell; (*d*) presence of two nodules of chromatin.

It must be remembered that in the very heavy acute infections further developmental forms of the malignant ring may be seen in the peripheral blood, such as immature schizonts and gametes. Even sporulating forms of this parasite were found on two occasions in the peripheral blood—an extremely rare occurrence. These are apt to be confused with the quartan parasite. Possibly this fallacy accounts for the comparatively high proportion, 25 per cent., of quartan[5] infections recorded by German observers in Palestine.

My thanks are due to the D.M.S. E.E.F., Major-General Sir R. Luce, K.C.M.G., C.B., A.M.S., and to the late Lieutenant-Colonel W. Angus, R.A.M.C., for permitting me to make use of information gathered in the course of my duties. I have to acknowledge my gratitude to my A.D.M.S., Lieutenant-Colonel J. J. Abraham, C.B.E., D.S.O., for his sympathy and encouragement in carrying out this scheme. I am indebted also to the officers in charge of military laboratories and diagnosis stations for permitting me to utilise their returns over the period under review; to my orderly, Private T. R. Goddard, R.A.M.C., who loyally assisted me during the last two years of the campaign; especially do I wish to thank my colleague, Captain E. C. Myott, R.A.M.C., for compiling the graphs which illustrate this report from statistics submitted to me weekly in the ordinary routine.

DIVERTICULITIS.

Being the Introductory Remarks to a Discussion at the Section of Surgery (Subsection of Proctology), Royal Society of Medicine, on Jan. 7th, 1920,

BY W. H. MAXWELL TELLING, M.D. LOND., F.R.C.P. LOND.,

CLINICAL LECTURER IN MEDICINE, UNIVERSITY OF LEEDS
HONORARY PHYSICIAN, LEEDS GENERAL INFIRMARY, ETC.

THE subject of diverticulitis is one in which the Subsection of Proctology has naturally a very special interest, but of which a full practical knowledge should be possessed by every abdominal, gynæcological, and genito-urinary surgeon, as well as by physicians and morbid anatomists. I will here concern myself with the broad lines of the subject, and mainly in its clinical aspects.

In 1917, when last reviewing the subject, I wrote[1]:—

> "Diverticulitis is a condition which has now passed out of the realm of doubt and uncertainty into that of proved and accepted fact. It has an important place in medical literature, and in the experience of every operating surgeon of large practice. This last statement is not as yet true of all clinicians, some of whom are still apparently unaware of the condition, and not a few of its frequency and clinical importance. Not until a morbid condition is described in all the ordinary student's text-books[2] of medicine and surgery can it be said to have attained complete recognition, and this is not yet the case with diverticulitis."

This is practically the situation to-day. Diverticulitis means any inflammatory change in any diverticulum or series of diverticula. In practice, however, usage has restricted the term to the inflammatory changes and secondary pathologic processes generally occurring in or in connexion with a certain type of diverticulum. This type is the secondary acquired, multiple, false diverticula of the *large* bowel, particularly and nearly always found in the sigmoid flexure. The diverticula occur mainly in the lower part of this structure in small or great numbers, but may be found elsewhere, as in the descending colon, the other flexures, the cæcum, the rectum, or throughout the entire large bowel. They may be limited to these special positions, though are more usually associated with sigmoid lesions as well; if so limited, they may give rise to puzzling and anomalous symptoms. The cæcal cases especially are of considerable interest, and merit much more attention and investigation than they have already received. Occasionally there is a widespread tendency to diverticulum-formation throughout the whole intestine. For convenience, however, I shall confine my remarks to the typical lesion as it occurs in the sigmoid flexure.

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[5] The quartan parasite was found nine times out of 40,168 blood examinations by malaria diagnosis stations within six months.

[1] Brit. Jour. of Surgery, vol. iv., No. 17. To this article reference may be made for a detailed study with analysis of cases.

[2] A small paragraph first appeared in the 1910 edition of Osler's Medicine.

"*Stabilisation*" *of the Subject.*

Historically, diverticulitis may fairly be said to be a new subject. Odd specimens had been described from time to time during last century, but such descriptions were "buried" and isolated, and the clinical aspects of the lesion were for all practical purposes unknown. In 1898 Graser[3] described examples associated with fibrous hyperplasia, causing stenosing tumour-formation—*peri-diverticulitis.* Similar cases were then described in America, and Patel[4] in France drew particular attention to the more acute inflammatory lesions—sigmoiditis and peritonitis. I observed my first case in 1899 and finding nothing about it in the literature, or even any onewho was familiar with the condition, I thence onwards made it a practice to examine almost every sigmoid flexure personally at the autopsies I made. The result was the accumulation of a considerable amount of material. In 1907, Moynihan[5] published the first case in England of the Graser-tumour type, and this induced me to analyse and classify my cases. This I did in 1908,[6] and this was the first time the subject had been treated as a whole and the various pathological findings and clinical symptoms correlated, or that any complete arrangement and classification had been attempted. That classification has been in essentials accepted by almost all subsequent writers and observers, and writing now, 12 years later, when a very considerable number of cases has been observed and recorded, I have no important modification to offer.

The reason that this early "stabilisation" of the subject was possible is this: Given the occurrence of a tendency to the formation of multiple hernial out-pushings of the mucosa in the sigmoid flexure every secondary process that does in fact occur may be logically deduced a priori, by general pathological comparison and study. I am not proposing to deal with the vexed question of *why* these diverticula occur in the first place except that there is no doubt that they are largely, if not entirely, due to increased pressure from within the bowel. Constipation, therefore, plays an important part, but I feel convinced that flatulent distension, often co-existing, of course, has a rôle that cannot be overlooked and needs more study.

Anatomy of the Diverticula.

A knowledge of the anatomy of these diverticula is of the first importance in understanding the secondary pathologic processes, and also in detecting them at all, either in the dead-house or at operation. At this point the inquiry is pertinent as to how it comes about that the condition has for so long escaped practical recognition, having regard to the large number of cases recorded—not a tithe of those observed—since 1898. The answer, is, I think, to be found in three facts. Firstly, the majority of demonstrators of morbid anatomy fail to devote special and personal attention to the sigmoid flexure, and perhaps to those surgical autopsies in which the surgeon has "spoiled" the abdomen generally and a specimen in particular by his manipulations; particularly when the structures operated on have been more or less inflamed, adherent, and "mixed-up." Secondly, the diverticula themselves are "adepts" at concealment; this I will return to later. Thirdly, the secondary pathologic processes are liable to be so extensive and disproportionate to the comparatively insignificant diverticula as to hide the true nature of the case from any but patient and skilled observers. This must be the general experience of all who have studied a series of specimens in situ.

The second of these points, the "self-concealment," turns upon the anatomy of the diverticula. Firstly, they are small, varying from minuteness up to the size of the last joint of the little finger; more commonly they are 1/3 to 1/5 this size. Their apertures are often minute, from 1/16 to 1/3 of an inch in diameter, and these apertures usually occur in two rows, mostly opposite the appendices epiploicæ, and often completely concealed by the rugose mucous membrane. On the outside of the gut the diverticula are seldom observed, except by the trained eye, because: (1) they mainly enter the appendices epiploicæ as stated; and (2) the gut in which they occur is very frequently fat-laden, necessitating careful dissection to discover them at all. The occurrence of adhesion to other structures and of peri-diverticular hyperplasia tends still further to conceal and almost to obliterate their presence. Even so, the fact that isolated observations on them for over a century should have failed to lead to complete recognition is a little remarkable, but none the less a fact.

I am stressing these anatomical points rather carefully, as they must be fully appreciated by every operating surgeon if he hopes to recognise the condition at the time of the operation.

Once the diverticula are "in being" the whole series of possible consequences depends upon the following three facts: (1) being formed by pressure from within they tend to enlarge; (2) they tend to harbour fæcal or other harmful contents; and (3) as a consequence they tend to undergo various secondary pathologic processes. In their enlargement they become flask-shaped, with a bottle-neck; this bottle-neck may greatly elongate, its lumen remaining very narrow. This elongation is brought about by *peri-diverticular hyperplasia*, which often pushes the "flask" to its circumference, where it "sits" on the surface of the tumour and works special mischief of other kinds, such as adhesion, perforation, and fistulous communication.

Secondary Processes.

The narrow mouths tend to promote the retention of fæcal contents, soft or forming actual concretions. Here analogy with appendicitis will largely help us to prophesy results, except in regard to the remarkable hyperplastic peridiverticulitis. The fæcal contents form a bacterial nidus, a reservoir of toxins and a source of mechanical irritation. As a result secondary changes supervene; if not, the condition remains a harmless pathological curiosity and gives rise to no symptoms or trouble. Perhaps the large majority of instances are largely or entirely innocuous.

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[3] Cent. f. Chir., 1898.

[4] Lyon Chir., 1911, vi.

[5] Edin. Med. Jour., 1907, xxi., p. 228.

[6] THE LANCET, 1908, i., 843.

The main secondary processes which do occur, separately or variously combined, are: (1) Ulceration of the mucosa of the diverticula. (2) Perforation as a consequence. (3) Adhesion to other structures which, when combined with (2), leads to fistulous communication. (4) Peridiverticular fibrous hyperplasia leading to tumour-formation and, as a sequential result, stenosis of the bowel.

Confining our attention to these main and usually secondary processes, which, as has been stated, may be variously combined, a few moments' consideration will show how protean and puzzling the resulting clinical manifestations may be. In the first place, mucosal ulceration will weaken the wall of the sac. This will facilitate perforation, and a concretion will be specially liable to be driven through at any time of increased pressure or violent effort, causing a local or general peritonitis. In quite a number of cases this has actually happened.

The mucosal ulceration also sets up inflammation on the outer surface of the diverticulum leading to adhesions. These *may* produce no important results, but *may* produce vesical or pelvic syndromes or an acute intestinal obstruction by band or kink. Adhesions plus perforation lead either to local abscess with its varied symptoms, signs, and sequential risks and possibilities, or to fistulous communication with other viscera, of which that with the bladder is the commonest, most interesting, and surgically the most important instance.

Peridiverticular Hyperplasia.

The culminating interest is reached, however, in the production of the fourth type of lesion, the peridiverticular hyperplasia. This may exist with mucosal ulcerations of the diverticulum, but not infrequently occurs without it, and is a common and characteristic result, the one which first led to a systematic investigation. It is undoubtedly due to a chronic leakage of toxins or bacteria, or both, through the sac walls, producing a hyperplastic fibrous-tissue formation somewhat similar to that found in hyperplastic tuberculosis of the cæcum, or more closely resembling a scirrhous cancer. Because of the hyperplasia, which may amount to an inch or more in thickness on section, a tumour is produced; because it is fibrous the tumour contracts and stenoses the bowel, tending towards chronic intestinal obstruction. This thickening and stenosis may be so local as to make an annular stricture, and it will be realised how close is the mimicry of carcinoma. In this way, doubtless, many of the cases of so-called "cured" cancer in this region may be explained, as well as the placing on museum shelves examples of peridiverticulitis labelled cancer. Others besides myself have found them.

There is, however, a very special relationship of the condition to true carcinoma. A simple peridiverticular stenosis (or possibly other diverticular lesion) may develop carcinoma secondarily, as in the case of a chronic gastric ulcer. A small number of cases have now been put on record, and since my last records were published in 1917 I have had a further case. The patient was riding and felt a sudden pain in the left iliac fossa, followed by temperature and signs of inflammation. I made a diagnosis of perforative diverticulitis, and Sir Berkeley Moynihan operated and confirmed, finding multiple diverticula, one of which had perforated and set up general peritonitis. There was also some thickening and stenosis, but no naked-eye evidence of malignancy. A year later a second surgical inspection was made, and malignant disease was then obvious and inoperable.

It is not too much to say, therefore, that no surgeon ought to decide about or operate on a supposed carcinoma of the sigmoid flexure without an accurate knowledge of what may be termed "diverticular possibilities," nor ought any such tumour removed by operation to lack a complete and *skilled* examination for the presence of a diverticula. It was only by this means that Moynihan detected and recorded the first of such cases in the English literature.

Groups of Secondary Processes.

We can usefully divide the secondary processes into two such groups: (*a*) mechanical (mainly), and (*b*) inflammatory (mainly). Both processes may go on in the same case, just as there may be present together varying types of inflammatory reaction.

A. *Mechanical.*

1. Formation of fæcal concretions in the diverticula.
2. Torsion of the diverticulum.
3. Lodgment of foreign bodies within the diverticular sacs.
4. Perforation.

B. *Inflammatory.*

1. Diverticulitis: (*a*) Gangrenous; (*b*) acute; (*c*) subacute; (*d*) chronic; (*e*) latent.
2. Passage of organisms without perforation.
3. Peridiverticulitis—chronic proliferative inflammation with tendency to stenosis of the bowel.
4. Perforation of the diverticula, giving rise in particular to: (*a*) General peritonitis; (*b*) local abscess; (*c*) fistula, especially into the bladder; (*d*) suppuration in a hernial sac.
5. The formation of adhesions, especially to: (*a*) The small intestine; (*b*) the bladder; (*c*) the female genitalia.
6. Chronic peritonitis, local.
7. Chronic mesenteritis of the sigmoid loop.
8. Metastatic suppuration.
9. The secondary development of carcinoma.

By the aid of this pathological series it is not difficult to forecast the main clinical symptoms and also to surmise that they will be liable to be variable, complex, and puzzling. This is so in fact, as a study of case records abundantly proves. At the same time, the majority of cases conform more or less to the following types: (1) Inflammatory trouble or tumour in the left lower quadrant of the abdomen; (2) general peritonitis; (3) vesicocolic fistula; (4) pelvic syndromes; (5) intestinal obstruction; (6) mimicry of carcinoma.

The frequency of tumour or abscess formation in association with any or all of these is considerable (about 30 per cent.), and one may say that any case from the age of 30 onwards, presenting these symptoms, calls for a mental reservation as to the possibility of a diverticular origin, and in some instances the diagnosis can and has been made with certainty and accuracy.

As general clinical points it must be remembered that cases occur mostly at or after middle age (though a few cases in early life have been noted)—in males more frequently than females; usually with a history of constipation and very seldom causing blood in the stools. A few comments are called for on some of the foregoing clinical types of case.

Inflammatory trouble, more or less acute, in the left lower quadrant of the abdomen.—Cases of this type constitute by far the largest group. Erdmann has gone so far as to say that the occurrence of left-sided pain, with mass or not, but with tenderness and rigidity, is practically pathognomonic of diverticulitis. This is the extreme view, favoured by the main supporters of the almost exclusive rôle of diverticula in inflammatory troubles in this quarter. Fitz in 1912 said that the cases comprised in this "inflammatory" group made a fairly complete picture of what must be recognised as a new disease of the lower abdomen—diverticulitis of the left quadrant, analogous to appendicitis of the right quadrant. Bladder and pelvic symptoms are not uncommon.

Various sub-types of the inflammatory group may be distinguished, and a useful clinical classification is as follows:—

1. *Acute and fulminant* (gangrenous).—Symptoms practically identical with acute right-sided appendicitis.
2. *Recurrent.*—Acute or subacute attacks over a long period.
3. Cases ending in *spontaneous recovery.*

Protracted cases.—Those which continue till the clinical picture is changed by one or other of the following developments: (*a*) Simulation of carcinoma; (*b*) intestinal obstruction (acute or chronic); (*c*) bladder perforation; (*d*) general peritonitis; (*e*) incidence of pelvic symptoms.

Trauma.—The mode of onset of many of the acute cases is of interest as showing the great part which trauma of various kinds may play. It has a definite diagnostic value when diverticulitis is under suspicion, and acts as an exciting cause of, at any rate, the acute manifestations. These have occurred straining at stool; during the administration of an enema; following a dose of castor oil; jolting in a motor-car; following a heavy meal; while lifting a weight, jumping, or hunting; while at work; and during an abdominal operation.

In this group pain of one kind or another (often recurrent and colicky) and tenderness are very frequent. Tumour-formation has been noted in 30 per cent. of the cases, and the tumour is not infrequently and then characteristically variable. Abscess-formation is very frequent, consequently fever and leucocytosis are often present. Bladder and pelvic symptoms are not uncommon. Apart from actual fistulous communication with the bladder, which constitutes a separate clinical group, there are frequently symptoms of bladder irritability, probably due to the nearness of inflammatory foci or to actual adhesion. Pelvic symptoms are of some frequency and sometimes make the clinical picture.

Vesico-colic fistula and bladder symptoms generally. In a recent review[7] Bryan has stated that "diverticulitis" is the most frequent cause of sigmo-vesical fistula. Moynihan was the first observer in England to emphasise this fact. He wrote in 1907:—

> "The formation of a vesico-intestinal fistula seems to be one of the tendencies of a perforated false diverticulum; a search through the literature has shown that it is far more common than was supposed. In cases where a hard growth in the intestine is accompanied by the passage of flatus and fæces by the urethra, a diagnosis of carcinoma seems irresistible, yet the *probability* is that 'the growth' would be simple, and that the cause of the fistula would be a false diverticulum which had burrowed its way through all the coats of the bowel, and thence through the wall of the bladder, which had become adherent."

Experience has abundantly confirmed the truth of this statement, and its recognition has been followed by some brilliantly successful cases at Leeds, cured by operation after long periods of suffering.

Pelvic syndromes.—Much has been written in recent years about the close pathologic relationship between the sigmoid flexure and the other pelvic viscera. Much of it has been without any or a very extensive knowledge of the rôle of the diverticulum. It is not surprising to find diverticulitis increasingly frequent in the practice of gynæcological surgeons. Pelvic symptoms of one kind or another existed in 7 per cent. of my collected cases, and a number of examples have been placed on record in which the symptoms were entirely pelvic, bowel symptoms being absent. There is no doubt that Shoemaker[8] strikes the right note in saying that in any suspected case of pelvic or utero-ovarian disease a routine and thorough examination of the recto-sigmoidal bowel and its functions is just as important as a vaginal and uterine examination.

Diagnosis.

This can only be made after a careful consideration of all the facts of the case. Inflammatory trouble in the left lower quadrant in a person of middle or advanced age carries with it a strong *prima-facie* possibility of a diverticulitis being the cause, but beyond this exact diagnosis is often difficult, and all special aids to diagnosis may have to be requisitioned. These include (1) the sigmoidoscope, which has been disappointing in the main in this condition, though perhaps some members may have had more fortunate experience; (2) the cystoscope, which has been of particular value in a small number of cases; and (3) examination by X rays. This last procedure holds out most promise, and has been greatly developed during the last few years. As may be expected, the technique is not of the easiest, and there are many fallacies in the appearances noted, but there is no doubt of the general diagnostic value.

The outstanding condition calling for differential diagnosis is carcinoma. It may be, and often is, impossible, not only before operation, but at operation. The following summary of the chief points differentiating diverticulitis from carcinoma may be of use.

1. The absence of the "shadows of malignancy" from the general picture.
2. Tendency to obesity and maintenance of good nutrition generally.
3. Long history of attacks of abdominal pain in the left lower quadrant.
4. History of tumour-formation with subsequent disappearance.
5. Absence of blood (visible to the naked eye) in stools over a prolonged period.
6. Presence of a vesical fistula, in which malignancy can be excluded by cystoscopy.
7. Negative sigmoidoscopy as regards malignant disease.
8. X ray demonstration of diverticula.
9. Pyrexial attacks.
10. Examination of blood, the presence of neutrophilic leucocytosis, and the absence of the specific nuclear changes characteristic of cancer.

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[7] Ann. Surg., 1916, lxiii., 353.

[8] Ann. Surg., 1914, lix., 422.

In carcinoma of the sigmoid loss of flesh is early, pain and tenderness are late, and are often preceded by tumour.

There are certain other conditions which have to be considered in arriving at a differential diagnosis. They are: (*a*) sigmoiditis; (*b*) hyperplastic tuberculosis; (*c*) actinomycosis; (*d*) syphilis; (*e*) pelvic conditions generally.

Treatment.

This is comprised in a single word—surgery—unless operative interference is specially contraindicated. As a physician I shall not venture to discuss particular surgical procedure, but confine myself to a few general points.

In view of the potentiality for mischief of diverticula, all diverticulum-bearing gut should be removed. At operation, search should be made, whenever possible, for further diverticula. Recurrence after operation has occurred, presumably from neglect of this point. There seems to be a special liability to post-operative peritonitis, possibly due to the chronic infection of the inflamed tissues in some cases.

Care should be taken in handling the gut, as at least one instance has occurred of rupture of a diverticulum by surgical traumatism. The good results already obtained in certain bladder fistulæ should stimulate surgeons to deal with such cases. In at least one very successful case the possibility of successful intervention had been negatived by several surgeons of eminence.

Lastly, no case of supposed carcinoma of the lower bowel must in future be regarded as inoperable, either before or at laparotomy, unless diverticulitis has been remembered, fully considered, and systematically investigated.

Leeds.

A SUGGESTED SCALE FOR
FEEDING INFANTS ON DRIED MILK.

BY VYNNE BORLAND, M.B., CH.B., B.SC. GLASG., D.P.H. LOND.,
ASSISTANT MEDICAL OFFICER OF HEALTH, WILLESDEN URBAN DISTRICT COUNCIL.

IT is now generally recognised that many diseases of early childhood, and in some cases of later life, are due to over-feeding at an early age. This refers more particularly to babies artificially fed than to breast-fed babies, and since in later years dried milks have come very much into use for baby feeding there is a greater tendency towards over-feeding.

While attending the consultations at an infant welfare centre one is soon struck by the great differences in weight of babies of a similar age. If they are bottle fed one finds, with very few exceptions, that, although there may be as much as 3 lb. or 4 lb. difference between their weights at the same age, they are receiving practically the same quantity of milk in 24 hours. The reason for this is that feeds are given according to the age of the child, the weight being considered only in a haphazard way. This occurs more particularly in those cases that are fed on the various "baby foods and dried milks" which bear the instructions for feeding on the covering label. This matter becomes more important under the present difficult conditions when, owing to the decreased value of money, a large number of nursing mothers go out to work in order to lessen their financial troubles, and consequently their babies are no longer breast fed. At the same time, owing to the scarcity of fresh cows' milk, the demand for specially prepared milks has very materially increased, and many local authorities have adopted "dried milks" as the most convenient form of distribution in connexion with a welfare clinic, either at cost price or free in necessitous cases.

A Plan for Feeding Babies in Accordance with their Weight.

Taking these facts into consideration, it is desirable that a more appropriate method of arriving at the necessary feeds should be adopted than by calculating quantities of feeds according to age alone. Therefore it is suggested here that it would be an infinitely better plan to feed a baby in relation to its weight. This method has produced very satisfactory results in Willesden, where it has now been practised for over two years. It might be argued that regular weighing is difficult, but in view of the increasing number of infant welfare centres throughout the country this difficulty vanishes. The middle and upper classes generally have scales at home, or they can have their babies weighed at a chemist's shop.

It is not intended to discuss here the advantages or disadvantages of dried milk for infant feeding, as that has been fully dealt with elsewhere,[1] but only to endeavour to present a scale of feeds that may prove of use to such local authorities or others who adopt this form of milk distribution. The present scale is based chiefly on a full-cream dried milk which has been modified to resemble human milk, but others not so modified have answered satisfactorily when given according to scale.

If the suggested scale of feeds is to be adopted it is essential that it should fulfil the following conditions: 1. It must be practicable. 2. It must be easily understood by doctors, nurses, mothers, or any person having charge of the baby. 3. The calculated amount of feed must produce a satisfactory gain in weight per week. 4. The stools must remain normal.

The investigation was carried out primarily on 69 babies of ages ranging from 3 weeks to 8½ months and weights ranging from 6 lb. 7½ oz. to 21 lb. 1¾ oz. The smallest feed which produced a satisfactory gain, the baby otherwise being in good health, was chosen from the clinic cards and noted. In this way 188 feeds at various weights were obtained. These were arranged in successive increasing weights and an endeavour made to produce a simple formula that could be used for guidance.

It has been the practice of the writer to arrange breast-feeding at intervals of 3 hours, 3½ hours, and 4 hours, according to the age of the child and the progress made. The 4-hourly intervals are begun as early as possible. In the case of the 3-hourly intervals the number of feeds given in the 24 hours is six, in 3½-hourly intervals five feeds, and in 4-hourly intervals five feeds. It has been remarked that in a large number of cases fed every 4 hours four feeds in the 24 hours produce satisfactory results. Accordingly, when a baby is artificially fed this principle is adhered to and only four bottle feeds are given in the 24 hours.

A Formula for Babies' Feeds.

After trying several means of obtaining a suitable formula it was found that by adding the number 9 to the weight if below 7 lb. and the number 10 to the weight from 7 to 16 lb. inclusive the required number of level teaspoonfuls of dried milk to be given in 24 hours was obtained. From 17 lb. upwards when the child is having four feeds in the 24 hours the second figure of the number of pounds' weight is taken as one feed. For example, if the weight is 17 lb. then four feeds are given each containing seven level teaspoonfuls of dried milk. It might just be mentioned at this point that all the various "full-cream dried milks" are reconstituted by a dilution of 1 in 8—i.e., one level teaspoonful to an ounce of water.

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[1] Report to the Local Government Board. By F. J. Coutts, M.D., B.Sc., D.P.H. (Food Reports No. 24.)

This formula will then be as shown:—

Below 7 lb. add 9 to weight = up to 16 level teaspoons in 24 hours.

From 7 to 16 lb. add 10 to weight = 17 to 26 level teaspoons in 24 hours.

From 17 lb. upwards take second figure as one feed = 28 teaspoons upwards.

Table I. shows how the formula works out in practice. The formula was applied to obtain the required feeds of 47 babies attending the clinic for the first time and which were already being fed on full-cream dried milk, but without proper regulation of feeding.

TABLE I.

Age.	Weight in lb., oz.	No. of teaspoons per feed.	No. of feeds.	Intervals in hours.	Total in 24 hours.	Gain.
7 wks.	6 2½	2½, 2½, 2½, 2½, 3, 3	6	3	16	8¼ oz. in 7 days.
4 ,,	6 8½	2½, 2½, 2½, 2½, 3, 3	6	3	16	2 ,, ,,
5 ,,	10 0	4, 4, 4, 4, 4	5	3½	20	4¼ ,, ,,
5 mths.	12 11½	5½, 5½, 5½, 5½	4	4	22	5 ,, ,,
8 ,,	18 9	8½, 8½, 8½, 8½	4	4	34	6½ ,, ,,

Another series represents the feeds of 25 babies, calculated according to formula, that were started on full-cream dried milk for the first time. In practically every case a satisfactory gain in weight was procured.

It will probably be argued that there is no guarantee that only the prescribed number of feeds with the proper quantity are given by the mother. In answer to this one may say that the dried milk is strictly rationed and the mother given very definite instructions that she must on no account exceed the quantity prescribed. Also it may be stated that the large majority are necessitous cases, receiving their supply free of charge, and they are informed exactly how long their supply should last. With very few exceptions the supply lasts until the day they are due to receive a fresh lot.

With the increasing scarcity of milk it has become the practice of the writer not to give any more than 30 level teaspoons per day save in exceptional cases. That is to say, when a baby weighs 17½ lb. it receives four feeds per day, each containing 7½ level teaspoonfuls of dried milk. This, when reconstituted, amounts to about 1½ pints. At this point small quantities of fine milk pudding are added, and the results are very satisfactory.

Table II. has been drawn up to show how the feeds may be given according to the formula. It will be noticed that the feeds only rise up to 7 teaspoonfuls given four times, but it must be left to discretion as to whether one ought to give more than 7½ teaspoonfuls four times—equal to about 1½ pints—when the child can assimilate small quantities of milk pudding. It is an established fact that the power of assimilation of infants is very variable, and, accordingly, one cannot say dogmatically that a child of a given weight should only require a certain quantity of milk in 24 hours. But if a child weighs so many pounds, then by giving a certain minimum quantity we can gauge to a great extent the assimilative power of that child and regulate the feeds accordingly.

TABLE II.—*Arrangement of Feeds According to Formula.*

Weight in lb., oz.	No. of level teaspoons per feed.	No. of feeds.	Interval in hours.	Total in 24 hours.
6 8	2½, 2½, 2½, 2½, 2½, 3	6	3	15½
8 0	3, 3, 3, 3, 3, 3	6	3	18
11 8	4½, 4½, 4½, 4, 4	5	3½	21½
15 0	6½, 6½, 6, 6	4	4	25
17 0	7, 7, 7, 7	4	4	28
17 8	Same plus ½ teaspoon pudding one feed.	4	4	28
18 0	Plus ½ teaspoon pudding two feeds.	4	4	28
18 8	Plus ½ teaspoon pudding or porridge three feeds.	4	4	28
19 0	Plus pudding or porridge four feeds.	4	4	28

The formula given above is not only useful as a starting-point, but can be used for guidance from week to week. A feeding programme can be given for as long as four weeks, so that the mother need not come to the clinic unless something happens to the child in the interval. This is arranged by giving each week one ½ teaspoonful more to the total quantity per day—i.e., one feed is increased by one ½ teaspoonful each week.

A SIMPLE MEANS OF LESSENING OR ELIMINATING

ALIMENTARY TOXÆMIA.

BY R. CHETHAM-STRODE, M.B., C.M. EDIN.;
AND
J. D. BENJAFIELD, M.D., B.S. LOND., M.R.C.S., L.R.C.P.,
BACTERIOLOGIST, KENSINGTON GENERAL AND WESTERN SKIN HOSPITALS.

THE important part played by an alimentary toxæmia in the causation and aggravation of disease is now generally accepted by the medical profession as a whole. The large intestine has been credited in the past as the chief offender in this respect, and many attempts, both medical and surgical, have been made to reduce its power of formation and capacity for absorption of toxins. Sir Arbuthnot Lane has adopted his operation of short-circuiting, a heroic measure to say the least of it, and one not invariably attended by corresponding benefit on behalf of the patient. Metchnikoff and his school have drawn attention to the longevity of certain races of mankind in whom the only common factor was the consumption of some sour-milk product. He therefore assumed that such products, whose active constituent is known to be lactic acid, would produce correspondingly beneficial results in other races.

Assuming, then, that a lactic-acid fermentation in the large intestine is the condition to be aimed at, the problem reduces itself to one of simple chemistry. We know that lactic acid is produced in milk by the fermentation of the lactose by bacteria. We have in the large intestine numerous bacteria capable of effecting this. We have, therefore, to find some means of supplying the necessary lactose. Carbohydrates administered by the mouth in the usual easily digestible form will not supply this ingredient, as they are broken up and absorbed during their passage through the stomach and small intestine. Thus the carbohydrate must be supplied in some form in which it can resist the action in part, at least, of the gastro-intestinal ferments.

The simplest means of overcoming this difficulty, and the one adopted by us in our practice, is to administer the carbohydrates in the form of coarse uncrushed oatmeal. This may be taken raw or cooked sufficiently to soften the outside of the grain, only leaving behind a hard core. The result is that the partially digested grain reaches the large intestine in the form of carbohydrate. The centre of the grain is composed of unaltered starch, whilst the outer layers, which have been subjected to the digestive action of the juices of the mouth, stomach, and small intestine, are composed of simpler molecules, the disaccharides, and hexoses. Both these latter can be rapidly converted into lactic acid and CO_2 by a suitable bacterial flora.

The fæces of the average individual are neutral or alkaline to litmus, and from what we have already said it would appear that the production of a lactic-acid fermentation was quite a simple matter. This takes place in many cases, more especially when dealing with the young, but there remain quite a large number of individuals whose excreta do not at all readily become acid. It is with this group of cases that we must deal in some detail, as they are the ones that concern us most closely, and we must apply ourselves to the discovery, if possible, of some preventive factor. The causes which may prevent the acid fermentation may be grouped under the following headings: (1) Stasis; (2) presence of unsuitable organisms in the fæcal flora; (3) absence of essential organisms from the fæcal flora; (4) an unsuitable dietary.

1. *Stasis.*

On examining Gram-stained films of the fæces of individuals who are more or less constipated one finds the following bacterial elements: (*a*) Gram-negative bacilli of coliform group; (*b*) Gram-positive cocci and diplococci and short chains of streptococci; (*c*) Gram-positive and Gram-negative bacilli containing spores; (*d*) Gram-positive coarse bacilli without spores (Bulgarian group). In a case where stasis is marked those classified under (*a*), (*b*), and (*c*) will all be present in fæcal films in large numbers, whilst (*d*) will only be found after some search. On the other hand, films from a case where stasis is absent will show a very different picture—that is, complete absence of spore-bearing bacilli, very few streptococci, a large number of bacilli of the Bulgarian group, and the remainder coliform organisms. Another difference between the two microscopic preparations will be seen; in the first the definition of the organisms will be poor and the stain taken up irregularly, whilst in the second specimen the converse will be the case. However, the most marked difference between the two specimens is to be found in the relative proportion of the Bulgarian to the coliform organisms. In the first case they may be in the proportion of 1–250 coli, whilst in the second case they may constitute a much higher ratio—e.g., 1–5. Thus this ratio, which one may legitimately term the "Bulgar Index," can be accepted as an indication of the presence or otherwise of intestinal stasis.

On abdominal examination of cases in this group one will probably find that there is some enteroptosis of the transverse colon, and on percussion of the gut in the neighbourhood of the cæcum dullness may be elicited. In such a case deep abdominal massage may be the determining factor in producing lactic-acid fermentation. This we consider to be a very powerful adjuvant in procuring the required result, for not only does it act by causing the contraction of the muscular walls of the gut, and the consequent propulsion of the contents, but also by improving the blood-supply of the gut wall it increases the secretions into the lumen. It is also essential that the oatmeal should reach the large intestine without too much delay; for this purpose again the abdominal massage is most useful.

Aperients may also be required. We find aloin is generally most useful. Calomel may be used occasionally, but should not be given too frequently as it appears impossible to maintain a lactic fermentation if any mercury is being administered. Liquid paraffin is also contra-indicated, as it again prevents this fermentation from taking place, possibly by forming a film-coating over the oat grains, and so preventing their interaction with the necessary bacteria.

In long-standing cases of stasis matters may be somewhat accelerated by washing out the large intestine at the commencement of treatment. The possibility of stasis must not be overlooked in a patient who gives a negative history as regards constipation, for on examination these may prove to be well-marked cases in whom the daily action is to be regarded merely as being an overflow from an already full cesspool.

2. *Presence of Unsuitable Organisms.*

Should a case resist the above measures, it will next be necessary to plate out the fæces on some differentiating medium. MacConkey's neutral red-bile salt-peptone-lactose-agar we have found to be the most generally used for this purpose. A thorough search for any non-lactose fermenters should be made, and in an obstinate case the examination should be repeated on several occasions before definitely excluding their presence. Should any non-lactose fermenters of the coliform group be present, a vaccine of this organism should be administered, for, from experience, it appears that the presence of a very small proportion of organisms of this class are fatal to the production of the desired fermentation. Usually after a few doses of an autogenous vaccine the invader disappears and the patient's stools become acid.

The organisms of this type most frequently encountered give the following sugar reactions: lactose, 0; glucose and mannite, acid and gas; dulcite and saccharose, 0. For the sake of convenience we call them enteritidis group; they do not usually agglutinate with the patient's own blood serum, nor with any of the high-titre sera of the paratyphoid group.

Other organisms met with which are apparently equally capable of preventing the desired result are *B. coli mutabile*, *B. fæcalis alcaligenes*, *B. proteus*, and, more rarely still, organisms of the dysentery group. Other cases may prove to have a large excess of *Streptococcus fæcalis*, which again may inhibit the desired reaction. Thus it is advisable to conduct fæcal examinations from the commencement, for not only do they assist one in diagnosis and prognosis, but a sure guide of the patient's progress may be obtained from the "Bulgar Index." Also much valuable time may be saved by the discovery at any early stage of a non-lactose fermenter.

3. *Absence of Essential Organisms from Fæcal Flora.*

This class of case may be recognised by the failure to produce acid fermentation, in spite of the fact that severe stasis has already been relieved, and by the failure to isolate non-lactose fermenters from the stool. In such instances the fæcal films do not show a good "Bulgar Index," but the proportion of the Bulgar group to the coliform organisms remains about 1–40. These require a sour-milk preparation which is rich in the required organisms.

4. *Unsuitable Dietary.*

For reasons not well understood there are some articles of diet which effectually prevent a lactic-acid reaction being maintained. The most notable of these are whisky, asparagus, pears, and salmon. After all the measures already detailed have been tried there will still remain a small residue of cases in whom one cannot produce an acid fermentation and who are not materially benefited by the treatment. For this reason it is obvious that the possible criticism that the beneficial results of the treatment are due merely to the amount of purging the patient is subjected to, cannot stand. The presence of the lactic-acid fermentation appears to be an essential one, and once this is obtained the rapid results achieved are almost incredible. Possibly the explanation is merely one of improved drainage—that is, the large intestine becomes much less tolerant to an acid content and therefore is in a constant state of peristalsis.

We are of opinion that this is not the sole explanation, for were it so one would expect much more frequent evacuations of the bowel, whereas in actual practice two, or at least three evacuations in the 24 hours are all that are necessary for the maintenance of the acid reaction. The facts that the offensive odour of the stool is rapidly lost on attaining the lactic-acid fermentation, and that the ordinary products of putrefaction (indol and skatol, &c.) are rapidly reduced in quantity, render it probable that the lactic acid actually exerts an antiseptic action on the organisms concerned in these processes.

One of us (R. C.-S.) has been combining this course of treatment with the ordinary symptomatic methods in his medical practice for the last 15 years. During this period the treatment has become more elaborated, and some of its difficulties realised and overcome. Failures have been met with, but they have all been failures in that the lactic-acid fermentation could not be obtained. In all cases where this fermentation has been established the condition of the patient has been materially improved. We select the notes of a few typical successful cases.

Typical Cases.

CASE 1.—Mrs. C., aged 48. Rheumatoid arthritis. Disease commenced in 1905 in wrist-joint, spreading later to the small joints of hands and feet. First seen in 1908 when the disease was well advanced; there were typical swelling and deformity of small joints of hands and feet and wrist, the knees also were commencing to become involved. The treatment was continued for 12 months and considerable benefit was derived, pain being much diminished and the progress of the disease being temporarily arrested. Treatment was then discontinued until 1913, and the patient once more became bedridden owing to deformity and pain of the knee-joints. A lactic-acid fermentation was once more established in July, 1913, and maintained with rare remissions until March, 1914, when she could walk with comparative ease and comfort. Since this time she has been able to perform all her housework. The treatment was discontinued two years ago, and it is only at the present time that the disease shows signs of renewed activity.

Note.—In this case treatment was not commenced until late when bony deformity was marked, but, in spite of this, progress has been completely arrested.

CASE 2.—Mrs. W., aged 57. Severe neurasthenia. Seen first in 1912, when headaches, insomnia, loss of memory, and palpitation were marked. At this time she also suffered from attacks of semi-collapse which lasted for 24 hours or more, when she would remain in a lethargic state. These attacks had been getting more frequent and occurred every four or five days; during them she appeared bloated and repulsive-looking, and to her friends had the aspect of a drunkard. She had no wish to live. On examination her heart was found to be dilated, cardiac dullness extending to one inch outside the mid-clavicular line; mental dullness and apathy were marked. Dullness over the cæcum was present, and the transverse colon had dropped to the brim of the pelvis. A lactic-acid fermentation was established in the large gut after three weeks' treatment and was at first maintained with considerable difficulty. Improvement commenced after a month's treatment and was at first manifested by a lengthening of the interval between the attacks. After 12 months she had regained her normal health and has since remained quite well.

CASE 3.—Mrs. H. J., aged 42. Ulcerative colitis. First seen in 1910. Illness commenced in 1905, and for the following five years she suffered from intermittent attacks of general abdominal pain, which had no relation to the taking of food. The pain was so severe that at times morphine had to be administered. She was habitually constipated, though attacks of diarrhœa occurred not infrequently. Blood and mucus was commonly passed during these attacks. She also suffered from severe attacks of depression and palpitation. Treatment commenced in May, 1910. Lactic-acid fermentation was easily established by means of oatmeal and massage. Symptoms rapidly cleared up, and the patient has shown no signs of any relapse.

CASE 4.—A. G., aged 17. Asthma. The patient had suffered from asthmatic attacks since a baby of six months. The attacks were characterised by a difficulty in breathing and "stuffiness" of the upper air-passages. At the end of 1916 he was having severe attacks of typical asthma, lasting about three days once a fortnight; during the attacks he was very breathless, having to sit up and fight for breath. There was no sputum. These attacks were commonly brought on by indigestion or head cold, the former being a very troublesome symptom throughout. His tonsils and adenoids were removed in 1912, after which there was a considerable improvement for a year. Commenced treatment in January, 1917. A lactic-acid fermentation in the large intestine was easily established by means of abdominal massage, oats, and aloin; improvement was very rapid, no definite attack of asthma since February, 1917. He is now able to eat anything, plays football, cricket, &c., and has not lost a day from work or school since that time.

CASE 5.—J. M., aged 42. Severe toxæmia presenting clinical picture of neurasthenia. Chief symptoms, headache, sleeplessness, palpitation, and loss of memory. History of two years' illness. On examination he was found to have a marked anæmia and some cardiac enlargement; no physical signs in the nervous system. Practically no improvement followed early efforts in treatment, and a lactic-acid fermentation could not be established. Three fæcal specimens had been examined without the isolation of any non-lactose fermenters. The plate of the fourth specimen showed 50 per cent.

colonies of an organism of "Enteritidis" group. An autogenous vaccine was administered. Five weeks later a lactic-acid fermentation was established, and the patient rapidly recovered normal health.

From the above rather dogmatic statements it may perhaps be thought that we advise this line of treatment as a "panacea of all ills," but this is not the case. What we do maintain is that a lactic-acid fermentation in the large intestine is a most desirable possession, both in health and disease, and that if it can be produced in the latter so much the better. We are not advocating that all other symptomatic or specific treatment should give way to the suggestions we have made, but we do think that, wherever possible, they should be combined with it.

THE PARATYPHOID B GROUP.

BY HARRY SCHÜTZE, M.B., B.S.MELB., M.D.WÜRZ.,
BACTERIOLOGIST, LISTER INSTITUTE.

SINCE Bainbridge and his collaborators in 1911 declared that it was possible by means of the absorption test to differentiate between Aertrycke and paratyphoid B organisms, various workers have attempted to prove the invalidity of the differentiation, while others have advocated the use of certain cultural tests to supplement the serological characterisation of the two groups.

During the examination of a number of strains the present writer has come to the conclusion that not only, as is becoming universally recognised, is it possible to differentiate, by the investigation of their respective absorptive characters, an Aertrycke bacillus from a paratyphoid B, but to subdivide, by means of the same test, the Aertrycke organisms into a number of types.

Fallacies in Classification by Clinical and Cultural Methods.

There are three main biological features which might be of use in the classification of paratyphoid B–Aertrycke members of the Salmonella group—their clinical manifestations, their cultural characters, and their serological characters. The clinical manifestation is not to be accepted as a guide to the nature of the causative organism in every case, and it is doubtless the failure to recognise this fact which has influenced Uhlenhuth in deciding that Aertrycke and paratyphoid B organisms are identical.

Bainbridge and Dudfield[1] have published a case of acute gastro-enteritis due to what was serologically paratyphosus B, while this paper will bring evidence of illness of an enteric nature presumably due to an organism which must undoubtedly be placed, according to the agglutination and absorption tests, among the "Aertryckes." Uhlenhuth,[2] it will be remembered, started out with a number of strains labelled paratyphoid B, suipestifer, food-poisoning bacteria, psittacosis, &c., and proceeded to show that some suipestifers remove paratyphoid B agglutinins from paratyphoid B serum, while some paratyphoid B strains do not. It is clear, then, that two groups of organisms, one absorbing and the other not absorbing a certain type of specific agglutinins, have been demonstrated, but the significance of the result was disregarded because the grouping did not tally with a previous labelling, which was doubtless clinical or zoological, in the sense that the psittacosis was isolated from a parrot and the suipestifers from pigs. If the absorption test may be discarded because two strains differentiated by it cause diseases clinically resembling one another, why should one not proceed further on the same lines and refuse to pay attention to the agglutinatory and even cultural differences of organisms such as paratyphoid A and B, which resemble one another so greatly in their clinical manifestations.

In differentiating strains by means of their cultural reactions one deals with a test of a much simpler nature than that afforded by an animal body during the process of infection, and a number of characteristics have been suggested for this purpose in the case of the organisms here under consideration; for instance, the fermentation of dulcite,[3] the production of H_2S in lead acetate agar,[4] and the reduction of fuchsin in glucose serum water.[5] Whatever groups of Salmonella organisms may be mapped out by these tests the response by the ten paratyphoid B and 46 Aertrycke strains, serologically diagnosed and investigated here, was practically identical with that of the paratyphoid B group as described by Krumwiede, the only exceptions being hog cholera Arkansas (an "Aertrycke" of uncertain origin) and Kruse (an organism identifiable as belonging to the same type of "Aertrycke" as 23 other strains not giving this cultural reaction). These two organisms gave the fuchsin and lead acetate reactions, characterised by Krumwiede and his fellow workers as indicative of the suipestifer group, but on the other hand did not behave like suipestifers in dulcite peptone water; both fermented this, hog cholera Arkansas after some inducement (subculturing through dulcite) giving both acid and gas in two days, and Kruse, though it so far refuses to give any gas, having always produced acid well after one day's incubation.

These cultural reactions, therefore, do not serve to differentiate, and may even, as is recognised, cut across serological groups; the organism Kruse, for example, belongs, by virtue of its agglutinogenic and absorptive properties, to a very definite Aertrycke group, but differs from all its fellow members in not reducing fuchsin in Krumwiede's glucose serum water, not producing H_2S in lead acetate agar, and not producing gas in dulcite. Dulcite is notoriously uncertain as regards fermentation, though the only other "Aertrycke" that has so far consistently refused to do more than produce acid is one isolated in Port Said, which, in respect of all the usual carbohydrates, is a non-gas-producing variety.

Krumwiede, Kohn, and Valentine recognise a group of organisms which correspond culturally with paratyphoid B, although they fail to do so absorptively. These organisms, which he labels B. choleræ suis (intermediate types), would agree, then, in the main with the "Aertryckes" here described.

The Value of Serological Tests in Classification.

It has been seen that the type of illness associated with a particular organism does not necessarily serve to indicate how that organism should be classified, and also that it has not been possible to differentiate paratyphosus B from "Aertrycke" and the various "Aertryckes" from one another by cultural tests; what, then, are the serological differences which have served to trace out these groups?

The form in which the absorption test was carried out is as follows: ½ c.cm. of the serum to be absorbed in a 1/50 dilution (titre about 1 : 6000) is added to one agar slope of culture (25–35,000 million organisms) rubbed down into ½ c.cm. saline;

absorption for one hour and agglutination for two hours at 37° with a fresh living watery suspension of bacteria. All agglutinating sera were made by the intravenous inoculation of rabbits with heat-killed emulsions.

Owing to the complexity of the reaction and the difficulty of reading the results, the introduction of a *tertium quid* should be avoided in the absorption test. By this is meant an attempt to see if X can, for example, remove Y agglutinins from a Z serum. Only by discovering whether X can remove the specific agglutinins from Y serum can light be easily thrown on the relationship between the two organisms X and Y.

As Kruse[6] has pointed out in connexion with his work on the dysenteries, in establishing the absorptive relationship between two organisms, X and Y, it may be necessary not only to test X's power of absorbing specific Y agglutinins, but also Y's capacity for removing specific X agglutinins. This has been the writer's experience also, and may be the case for two reasons. X may agglutinate badly with Y serum, in which case it has always been found that it will absorb equally badly. For instance, the case of the organism Piper I., isolated from the urine of a paratyphoid convalescent six weeks after the onset of illness—typical para. B. was isolated from the fæces on the same day; five days later normal para. B only was recoverable from the urine. (Table I.)

TABLE I.

Paratyphoid B serum.	Agglutination against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$	$\frac{1}{12800}$
Unabsorbed.	Para. B Tidy.	+++	+++	+++	+++	+++	+++	+
	Piper I.	+	–	–	–	–	–	–
Absorbed with Piper I.	Para. B Tidy.	+++	+++	+++	+++	+++	+++	+++

Controls –.

While culturally Piper I. resembled para. B, agglutination and absorption with para. B serum did not further the diagnosis; it was only after preparing a Piper I. serum and carrying out an inverse or "mirror" absorption test that the fact was revealed that Piper I. was a true paratyphoid B, a typical Schottmüller removing from the Piper I. serum all its specific agglutinins. (Table II.)

TABLE II.

Piper I. serum.	Agglutination against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$
Unabsorbed.	Piper I.	+++	+++	+++	+	–
	Para. B Tidy.	++++	+++	+++	+	–
Absorbed with Para. B Tidy.	Piper I.	–	–	–	–	–

Controls –.

On the other hand, a strain may agglutinate well with a certain serum and yet not absorb the specific agglutinins sufficiently to justify diagnosis.

T 4 F 6 is a culture isolated from the fæces of a mouse dying five days after feeding with para. B Tidy.

TABLE III.

Para. B Tidy serum.	Agglutination against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$	$\frac{1}{12800}$
Unabsorbed.	Para. B Tidy	++++	++++	++++	++++	+++	+++	–
	T 4 F 6.	++++	++++	++++	+++	+++	+++	+
Absorbed with T 4 F 6.	Para. B Tidy.	++	++	++	++	++	+	–

Controls –.

Whether this strain fished from the fæces plates is a selected "sub-strain" of the original Tidy, an altered Tidy, or even an alien paratyphoid B strain altogether, does not matter here; it illustrates the type of organism which while agglutinating does not absorb completely. (Table III.)

In spite of its being a good agglutinator, T 4 F 6 absorbed specific para. B agglutinins too poorly to settle its identity, but the "mirror" test was conclusive; paratyphoid B removed the specific agglutinins from a T 4 F 6 serum completely. (Table IV.)

TABLE IV.

T 4 F 6 serum.	Agglutination against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$
Unabsorbed ...	T 4 F 6	++++	++++	+++	+++	+++	–
	Para. B Tidy	++++	++++	+++	+++	+++	–
Absorbed with Para. B Tidy.	T 4 F 6	–	–	–	–	–	–

Controls –.

Thus it has been found that in a certain number of cases where the strain under examination is an "inagglutinable" para. B like Piper or one resembling T 4 F 6 in character, the "mirror" as well as the usual absorption test is needed to complete diagnosis, though in most cases para. B organisms of the Schottmüller type disclose their identity by at once absorbing the specific agglutinins of a para. B serum. Both forms of the test, however, are necessary in the diagnosis of an "Aertrycke"; the complete qualifying conditions being that the organism falls culturally within the bounds of the paratyphoid B group, and while either an active or a passive agglutinatory relationship to the paratyphoid B of Schottmüller is shown (i.e., either its serum agglutinates para. B, or the organism is agglutinated by para. B serum) no absorption by either organism of specific agglutinins from the other takes place.

Differentiation of B. Paratyphosus B *into Various Types.*

The serological relationship between "Aertrycke" and paratyphosus B having been so far established, it remained to be seen how the various "Aertrycke" strains stood towards one another, and the absorption test at once demonstrated the fact that there was a variety of "Aertrycke" types, differing from one another in exactly the same way as "Aertrycke" strains in general differ from paratyphoid B—i.e., the specific agglutinins of one "Aertrycke" type are not absorbable by an "Aertrycke" of another type. It is, of course, again necessary to carry out both forms of the test (to absorb X with Y as well as Y with X) before two organisms can be definitely declared of different types.

Working on these lines, the writer has been able to relegate the 46 "Aertrycke" strains into a number of types (the differentiation of the "Mutton" and "Newport" types has already been published by Captains H. Marrian Perry and H. L. Tidy, R.A.M.C.[7]), as tabulated below.

"Aertrycke" Strains.

1. *Mutton Type.*
    - Mutton. (Food-poisoning outbreak, Newcastle, 1911.)
    - H. (Food-poisoning case, Dublin, 1915.)
    - Hearfield. (Isolated by Captain Fletcher, R.A.M.C., from fæces and urine of dysentery carrier, Southampton, 1917.)
    - Wells. (Isolated from food-poisoning case by Captain Fletcher, R.A.M.C., Southampton, 1917.)
    - Port Said. (Isolated by Captain A. H. Priestley, R.A.M.C., from case during food-poisoning epidemic, Port Said, 1917.)

Allen, Blackwell, Dodds, Strong, Woodhead. (Isolated by Lieutenant-Colonel Martin, A.A.M.C., from cases in food-poisoning epidemic, France, 1918.)
A, B. (Received from Captain Perry, R.A.M.C., sporadic cases of gastro-enteritis, France, 1918.)
Brooks. (Isolated by Captain Fletcher, R.A.M.C., from fæces of Shiga carrier, Southampton, 1918.)
Amara. (Isolated from epidemic in guinea-pigs, by Major Gloster, I.M.S., Mesopotamia, 1918.)
Calf 6. (Isolated from epidemic in calves, by Captain Lawrence, R.A.V.C., Mesopotamia, 1918.)
Barnes, Hawker, Phillips, Stock. (Isolated by Surgeon-Captain Bassett-Smith from food-poisoning cases, Greenwich, 1919.)
Fulham Child. (Fatal food-poisoning case, London, 1902.)
Psittacosis. (Laboratory strain. Presumably of avian origin.)
G. Lab. (Laboratory strain. Of unknown origin.)
Kruse. (Laboratory strain. Of unknown origin).
Wassermann. (Laboratory strain. Of unknown origin.)

2. *Hirschfeld Type.*
   Priddis. (Isolated from case diagnosed as P.T.A. Peshawar, 1914 or earlier.)
   Hirschfeld's "Para. C"[10] (From case of enteric nature, Salonika, 1916.)
   Baghdad strains (9). (Isolated by Macadam,[11] Mackie and Bowen[12] from cases of enteric nature, Baghdad, 1918.)
   Witts. (Obtained from Professor Andrewes. Isolated from case at St. Bartholomew's Hospital, 1919.)
3. *Newport Type.*
   Newport. (From food-poisoning case, Newport, 1915.)
   Fentry, Hough. (Isolated by Captain Perry, R.A.M.C., from food-poisoning cases, France, 1918.)
4. *Stanley Type.*
   Stanley. (Isolated by Professor Hutchens from case of food poisoning, Stanley, 1917.)
   Britton. (Isolated by Captain Fletcher, R.A.M.C., from fæces, urine, and blood of case of enteric nature, Southampton, 1917.)
5. *Binns Type.*
   Binns, Timson. (From food-poisoning cases, France, 1917.)
6. *Arkansas Type.*
   Hog Cholera Arkansas. (Laboratory strain. Of unknown origin.)
7. *G. Type.*
   G. (From mesenteric gland of monkey dying during experiment on dietetics. London, 1917.)
8. *Reading Type.*
   Reading. (From water-supply. Reading, 1916.)

Five of the types will be seen to be definitely associated with disease in man, being represented by 24, 12, 3, 2, and 2 strains respectively.

The *Mutton* group claims over 50 per cent. of the strains, and would appear to be the most important; it includes strains from various countries and from animal as well as human epidemics; all members, as far as is known, gave rise to acute gastro-enteritic symptoms in the human cases.

The *Hirschfeld* group is, so far, a more or less geographical as well as serological entity; all cases have occurred in the East or had close connexion with Eastern countries. The clinical symptoms have been those of enteric. Further reference to this group will be found later in the paper.

The *Stanley* group is interesting in that while one member (Stanley) came from an acute gastro-enteritis, the other (Britton) was isolated on the fourth day of illness from the fæces, urine, and blood of a case clinically resembling paratyphoid fever, and was the only organism found.

Variability of Bacteria.

It is still too soon to say how constant and dependable these types are. The whole Salmonella group is considered a particularly variable one. Baerthlein[8] claims to have produced variation in paratyphoid B towards *B. typhosus*; Sobernheim and Seligmann[9] have grown strains which they regard as intermediaries between Gärtner and paratyphoid B. The only variation, however, met with in the course of this investigation has been what appears as more in the nature of a disclosure of identity, the organism becoming more agglutinable, more responsive to serological experimentation, than in the nature of a change of character necessitating the transference of the organism from one group to another. An illustration of this is afforded by the behaviour of the "Aertrycke" culture, Hearfield, which agglutinated badly with Mutton serum soon after isolation in 1917, and consequently did not absorb specific Mutton agglutinins; it was regarded as not being of the Mutton type. The making of a Hearfield agglutinating serum was frustrated on more than one occasion by the unexpected toxicity of this strain, otherwise the relationship to "Aertrycke" Mutton might have been established at once; it was only when the organism was re-tested in 1919 (with the same Mutton serum) that it could be grouped without the help of homologous serum. Hearfield had now lost its primary inagglutinability and came down to titre limit, and removed the specific Mutton agglutinins completely.

While, in the light of work done on the variability of bacteria, the possibility of impermanence in the membership of the groups here described cannot be denied, it would seem as if a sufficient degree of stability has been demonstrated to warrant attention being drawn to their existence. The acid agglutination test of Michaelis was not found useful in classifying the strains. For, although a certain correspondence was sometimes apparent, for instance, with Michaelis's lactic acid-sodium lactate mixture, all three members of the Newport group gave two agglutination maxima, the 2nd and 5th tubes, and the maximum of both organisms of the Stanley group was in the 4th and 5th tubes, yet, for the most part, the results were sufficiently confusing to prevent any classification; the Mutton group had members with maximum agglutination in the 3rd, 4th, 5th, 6th–7th, and 3rd–9th tubes. The tube of predilection for the majority of all "Aertryckes," as of paratyphoid B strains, was the 5th.

Estimated Relationship between Different Serological Types of B. paratyphosus B.

Apart from the constancy of these serological types the extent of their independence, one from another, has to be considered. It has been already stated that the "Aertrycke" types differ from one another in the same way as they all differ from the paratyphod group, but when one applies a test which, like the absorption one, is capable of detecting the finer serological differences betwen bacteria, one may expect to bring to light intermediaries existing between what are after all very closely related groups of bacteria, and this has happened apparently in one case, that of the strain Brooks. This organism, in virtue of its power of absorbing specific agglutinins from Mutton serum, has been placed in the group of that name; but it is also capable of absorbing specific agglutinins from Binns serum and must therefore be regarded as an intermediate strain between these two groups. There is this, however, to consider: the Binns group (two strains from the same epidemic) is not as sharply circumscribed as the others; it shows marked relationship to the Mutton group, as the following absorption tables (V. and VI.) illustrate. The same result is obtained with the other strain, Timson.

TABLE V.

Binns serum.	Agglutinated against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$	$\frac{1}{12800}$	$\frac{1}{25600}$
Unabsorbed.	Binns.	++++	++++	++++	++++	++++	+++	++	–
	Mutton.	+++	+++	+	+	+	–	–	–
Absorbed with Mutton.	Binns.	+++	+++	+++	+	–	–	–	–

Controls –.

TABLE VI.

Mutton serum.	Agglutinated against—	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$	$\frac{1}{12800}$
Unabsorbed	Mutton.	++++	++++	+++	+++	+++	+	+
	Binns.	+++	+++	+++	+++	++	++	+
Absorbed with Binns.	Mutton.	++++	++++	+++	+++	–	–	–

Controls –.

Special mention must also be made of the Hirschfeld group, members of which have been labelled by some workers,[10] [11] [12] paratyphoid C. That this is not an historically correct classification is probable. Paratyphoid C, as described by Uhlenhuth[13] in 1908 and by Heimann[14] and Sobernheim[15] in 1912, is a Salmonella with no agglutinogenic relationship, either active or passive, to paratyphoid B. And while a number of strains in the Hirschfeld group remain unagglutinated by paratyphoid B serum, others do respond to a greater or less extent, and all give sera which agglutinate paratyphoid B strains to a considerable degree.

The following table (VII.) illustrates the varying extent of agglutinatory relationship existing between paratyphoid B and the Hirschfeld group; some badly agglutinating paratyphoid B and "Aertrycke" strains (not of the Hirschfeld group) are included for the sake of comparison.

TABLE VII.

Type to which strain conforms.	Paratyphoid B serum agglutinated against—	$\frac{1}{100}$	$\frac{1}{200}$	$\frac{1}{400}$	$\frac{1}{800}$	$\frac{1}{1600}$	$\frac{1}{3200}$	$\frac{1}{6400}$	$\frac{1}{12800}$
Schottmüller's Para. B.	Para. B Tidy.	++++	++++	++++	++++	++++	++++	+++	+
	,, Lister.	++	++	++	++	++	–	–	–
	,, Edinburgh.	–	–	–	–	–	–	–	–
	"Aertrycke"—								
Hirschfeld's Para. C.	,, Hirschfeld.	+++	+++	+++	+++	++	+	–	–
	,, Witts (blood strain).	–	–	–	–	–	–	–	–
	,, Witts (urine strain).	++	++	++	++	+	–	–	–
Newport.	,, Newport.	++	++	++	++	+	+	+	–
Mutton.	,, Wassermann.	–	–	–	–	–	–	–	–
	,, Psittacosis.	++	+	–	–	–	–	–	–
	"Aertrycke" Baghdad 41 serum agglutinated against—								
Hirschfeld's Para. C.	"Aertrycke"—Baghdad 41	++++	++++	+++	+++	+++	+++	++	–
	"Aertrycke"—Baghdad 31	+++	+++	+++	+++	++	++	–	–
Schottmüller's Para. B.	Para. B Tidy.	+++	+++	+++	++	++	–	–	–

Controls –.

The agglutinatory relationship, both active and passive, of paratyphoid B to the Hirschfeld type of organism may not be as well marked as it is to most "Aertrycke" types, but, as is seen in the above table, it frequently equals, or even exceeds, its relationship to certain organisms undoubtedly "Aertryckes," and, indeed, to some paratyphoid B strains themselves.

The only fundamental distinction between the Hirschfeld group and paratyphoid B is that afforded by the absorption test; it has therefore been considered to show sufficient serological relationship to paratyphoid B to be placed alongside it and the other "Aertrycke" types, rather than be accorded a position as far removed as that of *B. enteritidis Gaertner* and *B. paratyphosus C* (of Uhlenhuth). Unlike those of the Hirschfeld type, these latter organisms have no agglutinins in common with paratyphoid B and the "Aertryckes."

Nomenclature.

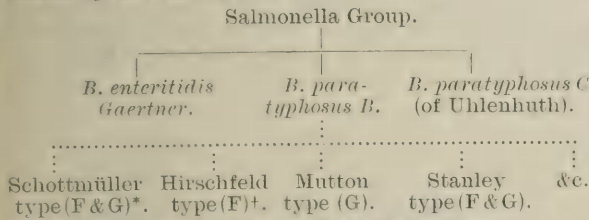
Apart from the question of relationship lies the question of nomenclature. In this paper the Hirschfeld type of organism has been regarded as an "Aertrycke." Hirschfeld labelled his strain paratyphoid C. Historically, the name paratyphosus C belongs to the organism which was described by Uhlenhuth as long ago as 1908 and by others since, and which, according to published accounts (a culture of this bacillus has not so far been obtainable), does not resemble serologically the Hirschfeld type. In view, however, of the so far constant association of illness of an enteric nature with the Hirschfeld type of bacillus, it may eventually be decided that the term paratyphosus C is more reasonably applicable to it than to Uhlenhuth's organism, which, apparently, has been isolated from human beings only in cases of acute gastro-enteritis. On the other hand, as it does not appear possible to limit consistently the term paratyphoid to organisms manifesting themselves clinically by disease of an enteric nature (Cf. Bainbridge and Dudfield's organism), there may be less reason for transferring the term paratyphosus C from one organism, to which it has been already applied, to members of the Hirschfeld type.

We have here, then, a series of organisms which includes Schottmüller's para. B, Hirschfeld's para. C, and the various types of what have been called "Aertrycke" organisms, all identical culturally, all resembling one another agglutenogenically to greater or less extent, but each type differing from the others in not being able to absorb their specific agglutinins. So long as there appeared to be but two types in this group of the Salmonellas, one represented by Schottmüller's organism and the other by De Nobele's Aertrycke bacillus, there was little need to find a name in common for them, but, with the recognition of an increase in the number of types, it has been considered justifiable and advantageous to classify them under one heading, and simplest to give this group the name of paratyphoid B. The alternative of naming the group after Durham or De Nobele, who first marked it off by the agglutination test, would still have left one with the task of inventing a whole series of new "species" names for the various types now found to exist alongside of para. B and *B. enteritidis Aertrycke*.

It is suggested, therefore, that the group be called paratyphoid B and the various subgroups regarded as so many different types of paratyphosus B—e.g., the Schottmüller type, the Hirschfeld type, and so on. The term "Aertrycke" has been omitted, as it is not yet known to which type De Nobele's strain belongs. Should, however, the Aertrycke bacillus, as is quite likely, be found to correspond with the Mutton strain it would, of course, serve as the prototype, and give its name to the group at present labelled Mutton. This amalgamated paratyphoid B group will almost certainly be found to be a very widespread and extensive one, comprising many "types" and including many of the strains obtained from diseased and healthy pigs which have been labelled *B. suipestifer*.

The Salmonella group would thus fall into two divisions (or three if paratyphosus C of Uhlenhuth is established as a separate entity), which are distinguishable one from another by the agglutination reaction, active and passive. The paratyphoid B group, with which the writer has been concerned, is further divided into types by the application of the absorption test.

Diagrammatically, the relationship of the various groups may be expressed as below. (The continued lines lead to groups differentiated by the agglutination test; the dotted lines lead to groups differentiated by the absorption test.)



* Prototype: *B. paratyphosus B* of Schottmüller.
† Prototype: *B. paratyphosus C* of Hirschfeld, MacAdam, Mackie, and Bowen.
F = Known to occasion continued fever in man.
G = Known to occasion acute gastro-enteritis.

Conclusions.

1. By means of Castellani's absorption test it has been possible to divide the "Aertrycke" group of organisms into a number of types, of which one (Mutton type) is by far the most largely represented, 24 organisms from 16 foci belonging to this type out of 46 strains from 28 foci.

2. As the various "Aertrycke" types serologically agree with, and differ from, one another in the same way as each agrees with, and differs from, paratyphosus B, the "Aertryckes" and paratyphoid B have been placed together in one group, of which they thus represent a series of types. There is some evidence for concluding that just as paratyphosus B may occasionally produce acute gastro-enteritis in man, so may a typically Aertrycke-like bacillus occasion continued fever resembling enteric. Thus there seems no good reason for separating one para. B type off from a series of Aertrycke or otherwise named types, and it is suggested as simple and justifiable that paratyphosus B be used as species-name for the whole group, the particular variety being indicated by the addition of a type-name, such as Schottmüller, Mutton, Hirschfeld, and so on.

3. Reasons for regarding as a member of the paratyphosus B group that organism which in the East is apparently of particular importance, and has been called by some workers paratyphosus C,[10 11 12] are here set forth, and the question of nomenclature is considered.

I wish to express my obligation to Professor F. W. Andrewes, Surgeon-Captain P. W. Bassett-Smith, Captain W. Fletcher, Professor H. J. Hutchens, Lieutenant-Colonel J. C. G. Ledingham, Lieutenant-Colonel C. J. Martin, Captain H. Marrian Perry, and Captain A. H. Priestley, and my gratitude for their kindness in supplying me with cultures and details of the cases in their charge.

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(Continued at foot of next column.)

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

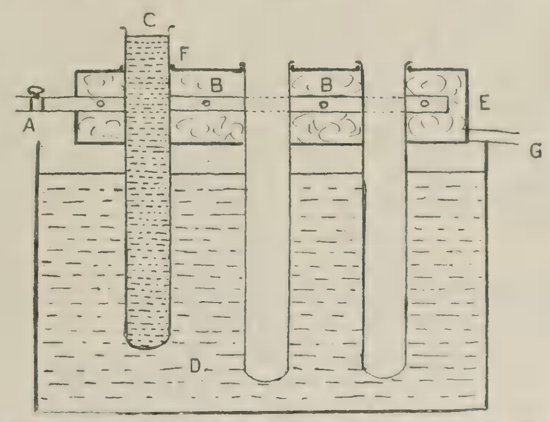
DETECTION OF ALBUMIN IN URINE:

A WHOLESALE METHOD OF HEATING TEST-TUBES.

BY GUY BOUSFIELD, M.B., B.S. LOND.,
FLIGHT-LIEUTENANT, R.A.F.M.S.

IN hospital practice the testing of a large number of urines for the presence of albumin is a matter of daily routine, and involves considerable waste of time in heating individual test-tubes over the flame. The method described below was devised with a view to time-economy, but was found afterwards to give very sharply defined results.

The apparatus consists of a flat copper steam bath, 1¼ in. deep, which is made in sections that do not communicate with each other. The upper and lower surfaces of the bath are perforated with holes, to allow of the insertion of well-fitting glass test-tubes (see figure).



A, Steam-supply pipe and cock. B, Perforated metal pipe, for steam-supply within bath. C, Test-tube, slightly raised, containing urine. D Cold-water bath. E, Steam bath. F, Raised rim to facilitate tube removal. G, Outlet pipe for condensation water.

The edges of the upper set of holes are slightly raised in order to facilitate the removal of the tubes. By this arrangement it will be seen that the heating element encompasses the upper inch or so of the test-tubes, and that owing to the division of the interior of the bath, any number of sets of tubes from, say, 5 to 40, may be subjected to the steam, allowing the apparatus to be adjusted to the number of urines to be treated, by the turning on or off of the cocks which are provided for each section of the bath. The actual distribution of steam within the bath is effected by means of perforated metal pipes which pass along the interior of each section. The perforations are so arranged that the jets of steam play between the tubes and not on to them. Reference to the figure shows that about four-fifths of the length of the test-tubes projects from below the heating element, and a cold water bath is provided to surround the greater part of this lower portion of the tubes.

(Continued from previous column.)

1917, xx., p. 457. 4. Jordan and Victorson: Journ. Infect. Diseases, 1917, xxi., p. 554. 5. Krumwiede, Kohn and Valentine: Journ. Med. Research, 1918, xxxviii., p. 89. 6. Kruse: Zeitsch. f. Hyg., 1907, lvii., p. 444. 7. Perry and Tidy: Med. Res. Committee, Special Report, No. 24, 1919. 8. Baerthlein: Centralbl. f. Bakt. Orig., 1918, lxxxi., p. 396. 9. Sobernheim and Seligmann: Deut. Med. Wochschr., 1910, p. 351. 10. Hirschfeld: THE LANCET, 1919, i., p. 296. 11. MacAdam THE LANCET, 1919, ii., p. 189. 12. Mackie and Bowen: Journ. of R.A.M.C., 1919, xxxiii., p. 154. 13. Uhlenhuth: Centralbl f. Bakt. Ref., 1909, xlii., p. 133 (Anhang). 14. Heimann: Centralb. f. Bakt., Orig., 1912, lxvi., p. 211. 15. Sobernheim: Hyg. Rundschau, 1912, xxii., p. 1026.

Consideration of the effect of the various arrangements described above shows that (*a*) the top inch or so of the contents of a tube is heated to 100° C.; (*b*) the middle portion is brought to a moderate heat; (*c*) the lowest portion remains quite cold. The advantage of these conditions is demonstrated in the case of a highly phosphatic urine, which should be treated as follows:—

A test-tube is taken from the apparatus, filled with the urine, acidified with dilute acetic acid, and replaced in the bath. Steam is now turned on for five minutes, and on removing the tube a beautifully clear and sharply defined result is obtained. The albumin, if present, is visible in the strongly heated layer of urine, even in the merest traces. The contents of the middle portion of the tube are quite clear, owing to the fact that the heating has been sufficient to clear the phosphates in acid urine, without being strong enough to bring down the albumin. The lowest portion of contents is cold and in its original condition, and serves to contrast with the heated layers.

When dealing with a large number of urines much saving of time is effected, as 40, or even many more samples can be heated in five minutes, according to the size of the apparatus. Most hospitals have a steam-supply laid on, but failing this advantage a very small boiler on a gas-ring has been found to produce all the steam required for a 40-tube apparatus. The boiler may be started in the morning by the nurse, so that when the physician arrives the apparatus is ready for use.

The method was used by me for several months in a London fever hospital, where the number of urines tested daily was large, and I believe the original experimental apparatus is still in use there.

TWO CASES OF

TRAUMATIC RUPTURE OF INTESTINES WITHOUT EXTERNAL INJURY.

By G. E. PEPPER, L. & L.M., R.C.P. & S. IREL.

THE interesting cases reported by Mr. E. Gerald Stanley in THE LANCET of Oct. 25th lead me to record two further cases of the above injury treated by me during the war.

CASE 1.—A private in the R.A.V.C. was thrown by a restive horse, the animal falling on top of him. On admission to hospital half an hour later I found him very collapsed and complaining of great hypogastric pain. T. 96·8°F., P. 100. No dullness of abdomen on percussion, but marked rigidity. He had a hard irreducible hernia the size of a hen's egg in the left inguinal canal, but stated that it had existed for years. Catheter specimen of urine normal. One hour later he appeared worse (pulse 120), and I opened his abdomen in the middle line below the umbilicus. There was no free fluid or blood in the abdominal cavity. The hernia proved to consist of the entire great omentum, which had dragged the transverse colon down to the lower part of the abdomen, remaining attached to it by a pedicle 2 in. long. As this pedicle was severely lacerated I ligatured it and removed the mass of omentum. Four inches distal to the base of the pedicle there was a rupture of the transverse colon 1½ in. long, and this I closed with Lembert sutures. At this point of the operation the patient collapsed, and it was necessary to close the abdomen hurriedly by through-and-through sutures, one pint of normal saline, T. 100°, being poured into the abdomen. Patient rallied after the operation, but died 18 hours later. Post-mortem examination revealed a second rupture situated in the jejunum 6 in. below the duodeno-jejunal flexure.

CASE 2.—A private in the R.A.S.C., whilst exercising a restive horse, was thrown on to the pommel of his saddle, and from there fell to the ground. I saw him two hours later, and found him suffering from severe hypogastric pain, with an intense desire to micturate. There was marked dullness on percussion over the lower abdomen, and blood was obtained on passing a catheter. T. 97°, P. 100. I diagnosed intraperitoneal rupture of the bladder, and opened abdomen in middle line above the symphysis. A large quantity of blood and urine poured out, and an extensive rupture of the bladder presented; after sponging the cavity dry I closed it by two layers of catgut sutures. On examining the intestines I found two small ruptures of the ileum close to the ileocæcal valve, and closed them by purse-string sutures. The abdominal cavity was sponged dry, a large drainage-tube passed to the bottom of the pelvis, and the wound closed by layers. A catheter was tied into the urethra and was removed on the third day, the patient passing urine normally. The abdominal tube was removed on the fifth day, and the patient made an uninterrupted recovery.

These cases emphasise two points of great importance—the urgent need for early operation, and the necessity of examining the whole length of the intestines at the time of operation.

Dublin.

CASE OF

LABOUR OBSTRUCTED BY A TUMOUR.

By THOMAS H. MORSE, F.R.C.S. ENG.

SOME years ago I published a paper[1] on the Treatment of Obstructed Labour when Caused by the Impaction of a Tumour in the Pelvis, illustrated by four cases. Since then another similar case has occurred as follows:—

CASE 5.—I was asked to see Mrs. D., who had then been in labour 48 hours, and was becoming exhausted. Pulse was 120, and pains were recurring about every three minutes. On examination per vaginam a semi-solid tumour occupied the pelvis, and with difficulty the finger could reach the presenting head, which had not yet engaged in the pelvis, but remained above the brim; the os uteri was fully dilated. The pelvis was so blocked that forceps and other instruments could not be passed into the uterus.

I decided to open the abdomen. She was at once removed in a cab to a surgical home. An incision about 11 in. long was made in the middle line of the abdomen as rapidly as possible, and the whole fundus of the uterus turned out. Mr. A. Ross, who assisted at the operation, very carefully kept it covered with hot sponge cloths. The right Fallopian tube and round ligament formed a tight cord passing behind the fundus down into the pelvis. On tracing this I found it attached to a tumour filling the hollow of the sacrum; this was about the size of a cocoanut, it was not adherent, and was easily drawn upwards and out of the wound; its pedicle was long and twisted upon itself. Having ligatured it with silk, the tumour was cut away; on examination it proved to be a dermoid ovarian cyst. The uterus was now with some difficulty replaced, as the parietes seemed insufficient to cover it; however, this was finally accomplished. The whole operation had to be rapidly performed, the pulse having reached 130 per minute before beginning. Brandy enemata were given and strychnine hypodermically, and the patient rallied quickly. The wound was dressed temporarily, and then Mr. Ross applied forceps and delivered the child, which, although well developed, was dead, the result, no doubt, of the prolonged labour. The after-treatment was quite satisfactory, and the patient was quite well in a week.

As cases of this kind will recur it will be a gratification to me to find that the method described above has become the recognised form of treatment, and that it can be easily carried out by the surgeon of the present day.

Deal.

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[1] THE LANCET, 1904, ii., 1343.

Reviews and Notices of Books.

THE GREAT WAR AND THE R.A.M.C.

By Lieutenant-Colonel F. S. BRERETON, R.A.M.C. London: Constable and Co., Ltd. 1919. Pp. 300. 12*s.* 6*d.*

IT is a truism that, for the combatant and non-combatant sections of an army, war and battle wear different aspects. The combatants face death, nerve-racking situations, hunger, weariness, and, sometimes worse than all, retreat. But against all these they have one great item on the credit side—namely, that sensation which is referred to again and again in the finest and oldest battle story in the world, the Iliad, as χάρμη, "the joy of man-ennobling battle," to quote Homer's phrase. For the non-combatants all the ills are present without this redeeming feature. Transport, ammunition columns, despatch riders, and, above all, the R.A.M.C., face every conceivable hardship and risk, while this "battle joy," when theirs, is theirs in other circumstances. It is one thing to fight when it is a question of kill or be killed, but far other to do duty with the chance of being killed, knowing that reprisal is not in the official programme. The R.A.M.C. above all others glean the sad aftermath of the harvest of war. To use homely language, they have to clean up the mess, and in the volume before us, which is the first of a series dealing with the medical work of the war, we have the record of the R.A.M.C. during the first two months of the conflict, comprising the operations around, and during the retreat from Mons, and the events of the battles of the Marne and the Aisne. The medical service was sufficient in size and equipment for the comparatively tiny army which was our first contribution to the war, except in the matter of transport; but as the army grew, an almost new medical service had to be improvised. After the first two months the auxiliary aid of the Red Cross Association and the St. John Ambulance Association had to be called in, to say nothing of the thousands of civil hospitals that were founded in private houses and municipal buildings for the care of the ever-increasing number of wounded. These matters, however, are outside the scope of the volume before us.

We have said that the medical service was deficient in transport, but Colonel Brereton is careful to point out that this was not the fault of the medical authorities. Horse transport there was in plenty, but the Director-General even before the war had foreseen the necessity for the increased mobility afforded by motor ambulances, had asked for them, and had been refused. The result of this unhappy decision became only too evident in the first hours of the war. "Seek the evidence of wounded officers and men who passed through purgatory on horsed ambulances and motor lorries. Question those unfortunate men of Mons, prisoners since 1914, wounded in the first hours of the war—abandoned for lack of transport. The dead yield no word of these doings. Yet men died for this self-same reason." Not until the operations on the Aisne were the motor-ambulances, so urgently asked for by the Director-General, supplied, and the lack of transport and its results during the great retreat from Mons are vividly described by Colonel Brereton—a retreat marked by misery and heroism only comparable to those historic retreats of the Athenians from Syracuse and the British from Astorga to Corunna, which live for ever in the narratives of Thucydides and Napier. Again and again we read of field ambulances breaking down, of wounded having to be abandoned, of ambulance horses being utterly worn out, and of the wounded having to be carried on artillery wagons and impressed civilian carts, with the result that the artillery horses also broke down, so that the guns were held up. There is more than mere sentiment in the beautiful prayer of the Russian Church in time of war: "And then for those, the humble beasts which with us bear the burden and heat of the day, we pray Thy pity, Master and Lord," for the avoidable sufferings of animals react with untold evil upon men.

Colonel Brereton's account of the heroism of all units of the R.A.M.C. is a moving tale, told with all due reserve; he mentions many names, but every man, from officer to stretcher-bearer, did his duty, and that under circumstances of inconceivable hardship, and many a one laid down his life. Nor must we omit to remember those whose deeds are enshrined in the report of the committee which investigated the typhus outbreak in the camp at Wittenberg. It will be within the recollection of all that the German Medical Staff abandoned its duties when typhus broke out, but the German Government sent six British medical officer prisoners—Major Fry, Major Priestley, Captain Sutcliffe, Captain Field, Captain Vidal, and Lieutenant (afterwards Captain) Lauder. Of these six Major Fry and Captains Sutcliffe and Field were attacked by typhus soon after their arrival and died. The other three lived to return. What they did may be read in Appendix II. of Colonel Brereton's book. As to the medical orderlies, "They, all of them, with full understanding, for they were all warned, risked their lives without a thought, and many of them died at their posts." We congratulate Colonel Brereton upon this, the first instalment of his book, which should stimulate readers to expect with eagerness the sequel.

ANESTHÉSIE À LA STOVAÏNE.

En Chirurgie et en Médecine Vétérinaires. By GUSTAVE PÉROL. Paris: Masson et Cie. 1919. Pp. 32 and plates. 3 francs.

GENERAL anæsthesia is ill-adapted to the larger animals, and M. Pérol in this little treatise shows good reason why local and regional analgesia deserve much wider recognition than they have yet received from veterinary surgeons. The risk and inconveniences inseparable from the felling of animals, necessary when no anæsthetic is employed, are all avoided, and the beast, moreover, experiencing no pain, is amenable when it comes again under treatment. A solution of 2 per cent. stovaine is recommended, and as much as 100 c.cm. may be injected into a horse without producing any general reaction. Cocaine, on the other hand, gave rise to trembling and profuse sweats. Adrenalin (1 in 1000) is used with the stovaine. Details of various common operations are printed, and a few excellent photographs of the method at work.

LE MYTHE DES SYMBIOTES.

By A. LUMIÈRE. With 47 illustrations. Paris: Masson et Cie. 1919. Pp. 209. 6 francs.

IN "Les Symbiotes" Portier proposes that all animals and plants are double symbiotic organisms, and that each of their cells contains a special microbe which plays an indispensable part in their life and metabolism. He was able to cultivate this remarkable organism from the tissues of healthy animals, and finds that it is identical with the mitochondria of cytologists and the vitamines of the bio-chemist. In the present volume, well printed and illustrated and cheap, Lumière points out, firmly and quite gently, that the available facts do not altogether support the hypothesis. It is well known that bacteria of one sort and another occasionally gain entrance to, and may be cultivated from, healthy tissues, and in an interesting review of symbiosis, cell inclusions, and vitamines, he traverses various biological problems in a readable fashion. The book closes with a graceful word of thanks to Portier for starting such an entertaining and profitable hare—thanks in which we may all join. For it is certainly proper to consider and reflect on the relations which have been established between moulds and the growth and germination of orchids and heaths, on the nature and meaning of the intracellular bacillary bodies in Blatta and Cyclostoma, on the real possibilities of a healthy aseptic existence, on the connexion between vitamines and the synthetic activities of intestinal bacteria, and generally on the due limitation of the imagination. There is a useful bibliography of 49 pages.

CHILD WELFARE.

The Teachings of Certain Dentists. School Medical Officers. Medical Officers of Health, and other Medical Men. By J. SIM WALLACE. London: Baillière, Tindall, and Cox. 1919. Pp. 102. 5*s*.

THE works of Dr. Sim Wallace are always interesting. His latest book is really a reprint of papers contributed to various societies and journals since 1914. In company with a few leaders of dental thought in this country, he realises that the pathology and ætiology of caries are sufficiently well known to support effective measures for the prevention of this disease, which is probably more easy to prevent than any other. And although the methods of prevention have been taught for at least the last 15 years, dental caries is still rampant in our midst. Dr. Sim Wallace believes that the onus of spreading the knowledge of how to prevent dental disease is upon all those who come into intimate relation with parents and children—i.e., medical practitioners, school medical officers, nurses, and school teachers. He has some hard words to say about those responsible for educating the medical man, and lays particular blame on the physiologists for their lack of knowledge of the elements of oral hygiene, feeling that, until these laws are understood by those responsible for the welfare of the child, progress will be slow in preventing dental disease.

The amount of dental disease amongst the individuals forming the nation lowers the health of the nation as a whole, and depreciates the economic value of the worker. There are signs that an attempt is to be made to deal with this problem by the creation of a public dental service. We draw the attention of those responsible for the creation of any service to this little book, for it will help them to recognise that the right way lies not in starting curative centres, but in the broadcast dissemination of the means of prevention. Thousands of pounds of public money may be saved in this way, and dental disease effectively combated.

AN ATLAS OF DENTAL EXTRACTIONS.

With Notes on the Causes and Relief of Dental Pain. By C. EDWARD WALLIS. Second edition, with 11 plates. London: J. and A. Churchill. 1919. Pp. 23. 5*s*.

THE author has designed this small work for the use of medical students and practitioners, and he has, we think, succeeded in producing a very useful book. The medical man who is called upon, in an emergency, to extract a tooth has not at hand a modern dental operating chair, and has therefore to make shift with an ordinary arm-chair. The author, having realised this, has shown how the operation of tooth extraction can be carried out in an "improvised dental chair." The technique of the methods of removing the different teeth is clearly and concisely stated, and should prove of great practical value. We think that the book will reach another edition, and we would therefore suggest to the author, when he is revising his work, to describe more fully the method of plugging sockets in cases of bleeding, and also to make quite clear that the bleeding is not always from the tooth socket, but sometimes from torn vessels in the gums. We would also point out that calcium lactate is more efficient when freshly prepared.

THE PHYSICAL CHEMISTRY OF THE PROTEINS.

By T. BRAILSFORD ROBERTSON, Ph.D., D.Sc. London: Longmans, Green, and Co. 1918. Pp. 484. 25*s*.

THE protein group has received intensive study during the last decade with results of increasing interest and importance. The situation as it stands is admirably presented in this volume and it is doubtful whether a more complete or up-to-date account exists, the author having taken extraordinary pains to exhaust past and current literature on the subject. Proof of this is seen in the references to such an important investigation as that of Van Slyke, who developed an accurate and simple method of determining free amino groups; to the work of Pauli upon the combining capacity of de-aminised proteins; to that of Schmidt and B. af. Ugglus upon compound proteins; of Procter upon the swelling of protein jellies; of Reichert and Brown upon the crystallography of hæmoglobin, and of Dabrovsky upon the molecular volumes of proteins dissolved in water and in solutions of coagulating salts. The book is a valuable and welcome contribution to the subject.

AIDS TO THE MATHEMATICS OF HYGIENE.

By R. BRUCE FERGUSON, M.A., M.D., B.C. Cantab., D.P.H. Eng. London: Baillière, Tindall, and Cox. 1919. Pp. 186. 3*s*. 6*d*.

THE fifth edition of this valuable little pocket-book is even better than the previous editions, the most notable new points being an explanation of the term millibar which is now so frequently used in barometrical records, and an important addition to the chapter on Energy, Exercise, and Diet. Questions that have been set in the various D.P.H. examinations are given on each subject; most of them have been worked out in full, and are so clearly and simply expressed that the most unmathematical reader can easily understand them. The following is one example: How much sewage would be discharged in three hours by a sewer, circular in shape, with a diameter of 18 in. and a fall of 1 in 180, running half-full? The amount is shown to be 2,565,427 gallons. The chapters on the construction of a hospital ward and on vital statistics are especially noteworthy. It is not merely a book for students, but is a reliable book of reference that might well be on the table of every public officer of health.

OPERATIONS ON HUMAN CORPSE AND LIVING DOG.

Operationsübungen an der menschlichen Leiche und am Hund. Von Professor Dr. G. AXHAUSEN. With 132 plates. München: J. F. Lehmann. 1919. Pp. xii + 308. 50 marks.

THIS work is not a text-book in the ordinary sense, but is rather a series of "exercises" in academic operative surgery, and it gives us throughout an impression of being divorced from reality. It contains descriptions of a series of operations on the dead human body and on the living dog, and an industrious German student, having worked conscientiously through it, would no doubt imagine that he was well equipped to face the exacting demands of the operating theatre. But he would be mistaken. It is a book with large pretensions; the descriptions of operations are clear; but the author's omissions are, to an English reader, remarkable and some of the methods described still more so. Certain examples may be given. In the section on amputations we have very full descriptions of the operation of amputation of the foot according to Chopart and Lisfranc, but Syme's operation, which, by English surgeons at any rate, is preferred to any other, is not even mentioned. It is difficult to believe that the author's choice really represents the result of German experience. In the section on cranial surgery the ordinary operation of trephining is not described; the author concentrates on the fashioning of an osteoplastic flap, but gives the impression that the only method of opening the skull which is known to him is effected by means of the chisel and mallet, the more refined methods of modern surgery not being mentioned. In describing the operation of appendicectomy the author refers to the pararectal incision, but dismisses it as inferior to the "outer incision." He then describes this very fully, and remarks that the muscles may be divided in the line of their fibres, but he evidently regards this as an unnecessary precaution, for all his very careful drawings of the stages of the operation show the muscles ruthlessly divided in the line of the skin incision.

That part of the book which is devoted to operations on the dog points to a difference in national systems of education. The German student is able to familiarise himself with the technique of abdominal surgery by practising on the dog; in this country such work is only done by experts and for cause shown.

An immense amount of trouble and expense has been devoted by the author and the publishers to the illustrations, which are extremely good. The numerous coloured plates are masterpieces of colour printing, a process in which Germany has long excelled.

THE LANCET.

LONDON: SATURDAY, JANUARY 10, 1920.

Rewards for Medical Discovery.

WE publish in another column a report which is to be presented to Government at an early date by a Joint Committee of the British Medical Association and the British Science Guild, the object being to ensure that medical discovery shall be more adequately rewarded by the State than it is at present. The Joint Committee, it will be seen, has a strong personnel, and the document sets out their considered point of view in clear terms. Medical discovery is defined, under two heads, as being (1) the ascertaining of new facts or theorems bearing on the human body in health, and the nature, prevention, cure, or mitigation of injuries and diseases of human beings; and (2) the invention of new methods or instruments for the improvement of sanitary, medical, and surgical practice, or of scientific and pathological work. With these definitions no one can quarrel, but it will occur immediately to all minds that considerable discussion may arise over the word "new." Medical science is essentially evolutionary, the departures of the present being alike founded on the knowledge of the past and directed towards the developments of the future. At almost every point in the history of a medical discovery part of the work is old while part of it is new. A great proportion of medical investigation is necessarily engaged at first on the testing and perfecting of the old: at what point does the work become "new," and therefore eligible for an award under the definitions of the Joint Committee?

The reasons for rewarding medical discovery are set out as twofold—to encourage medical investigation, and to discharge a moral obligation incurred by the public for its use of private effort. In the first of these reasons we find some answer to the difficulty we have set up. It is to encourage medical investigation that money is required, so that rewards for the results of discovery may, partly at least, be received while the inventor is engaged at his work. The more this situation is encouraged, the further into the background recedes the need for pensions. Undoubtedly at the present moment the scientific investigator, as far as the profession of medicine is concerned, is quite unfairly rewarded. Apart from titular honours and dignities, he can have little to look for except small professorial or tutorial fees, or some inadequate return for his educational work; while alike as professor, demonstrator, or lecturer he spends a large part of his time aloof from any commercial contact with the public. Most of our educational leaders have been persistently underpaid for that part of their work; now that we all see in properly directed research the great future of medicine, it follows that those who direct should be properly remunerated. From their work will come the discoveries that mean immeasurable benefit to the State.

The Report divides medical discoveries into those which have cost the investigator direct or indirect monetary sacrifice, those which have brought return to him by an increase of professional emolument, and those which involve neither gain nor loss to him, the last class being the largest. It is clearly unjust that medical discovery which may be of extreme value to the public should entail financial loss upon him who has made it, and where this is the case compensation should be forthcoming, though the determination of the actual figure will often be a delicate task. The Report suggests that the following four things should be taken into account: Width of application, difficulty of work done, immediate practical utility, and scientific importance; and under the last three of these four headings a properly selected body of almoners should have no difficulty into coming to just decisions. But when such a body of almoners come to consider width of application of a medical discovery they will at once be faced with the difficulty which we have foreshadowed above, and the Report reveals this, although not in so many words, when it says that the work of many of the older anatomists, physiologists, and parasitologists, of PASTEUR, and of investigators of immunity, has affected most recent discovery. The wider the good effected by the departure the more difficult will it be to decide if it is "new." We have purposely set out some of the difficulties before the Joint Committee in making out the case; it only remains to say that we are wholly with the spirit and objects of the representation.

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The Outlook in Psychotherapy.

"IN the world there is nothing great but Man; in Man there is nothing great but Mind"—the words of Sir WILLIAM HAMILTON are engraved in letters of gold on the walls of his old classroom in the old University of Edinburgh. Is the day at length dawning that is to see full recognition of their truth, and is the medical profession to play a leading part when Mind comes to claim its kingdom, or shall it be content to follow where others lead? He who reads the signs of the times is aware of a surging movement towards the doors beyond which opens the world of the psyche, an insistent stretching out for the key to unlock its mysteries. No material explanation of the simplest phenomenon satisfies the man for whom modern journalism caters: CARPENTIER prevails, because of the glamour of hypnotism; untutored ladies know not what they paint, but lo, on reversing the picture, it is seen to have become, through "spirit guidance" and by "psychic power," a head of the CHRIST. What though the smile of superior knowledge curl on the lips of the sceptic?

What though the persons concerned can ridicule the pretensions to mysterious influence with which they have been credited? Has not the average man heard on every side of communication with those who are gone, of visions on the eve of battle, of the angels of Mons and the Poltergeists of Sir Arthur Conan Doyle?

Let those of us, however, who are indifferent to such examples of the will to believe, bethink themselves how closely they are concerned in the equally insistent trend towards mental healing. No consultant but learns how patients drift off to some irregular practitioner with electricity in his finger-tips, no sufferer but has heard of the cures, invariably marvellous, effected by some who are outside the pale, and of whom it is alleged we are jealous. Yet why should we be? The proper and rational application of psychotherapy in suitable cases is being successfully conducted by scores, nay hundreds, among us, who have their grateful patients just as much as any Eddyite, faith-healer, or "new-thought" expert. If we ask why it is that such self-constituted therapists flourish in our midst, the answer is obvious. In the first place, a proportion of the medical profession still looks askance at anything savouring to them of the mysterious or the unknown; for them hypnotism suggests mesmerism and disgusting public performances of other days, not free of a considerable admixture of the fraudulent; Freudian psycho-analysis means a nasty mind, wallowing in sexual garbage to the detriment of practitioner and patient alike; suggestion implies the merest trifling with a symptom, to the exclusion of any genuine effort to find a cause. The prejudices of these our confrères, be it said plainly, are based on simple ignorance of the facts. And this leads to the second point, which is that no schools of rational psychotherapy have ever been established for the instruction of the student of medicine, undergraduate or post-graduate; as he is laboriously taught how to stain a section of a fatty liver but not how to prevent the liver from becoming fatty, so the complete paranoiac is paraded before him in the institution, but no systematic initiation into the prevention, recognition, and cure of the earliest stages of the mind diseased is ever attempted. When have we had in this country a school of psychotherapy with the reputation of the schools of Nancy and the Salpêtrière, faded though it now may be? Why are the great names in psychotherapy monotonously foreign? The student picks up a few crumbs in a haphazard fashion, but how many of us, by the day we received our diplomas and were licensed to practise medicine, had actually seen cases of functional nervous or mental disease treated and cured by an expert in the subject? It is little wonder, then, that a valuable paper such as that published by Dr. W. A. Potts, on Psychotherapy in Ordinary Practice, in a recent number of The Lancet,[1] should seem to not a few a departure, opening a new field of the existence of which they have been in regrettable ignorance. It is no answer that treatment by psychotherapy is as old as the hills, and the ancient platitude that physicians employ suggestion habitually, if perhaps unintentionally and unconsciously, no longer suffices. Until the approved methods receive recognition in the medical schools, and the application of theoretical knowledge to concrete cases is there displayed, so long will dissatisfied patients flock to those who may, indeed, be unacquainted with the morbid anatomy of general paralysis, and have never heard of schizophrenia, but who can remove a psychic neuralgia or give the weary sufferer sleep. There is no reason in the world why the same proportion of our young graduates should not turn their steps in the direction of psychotherapy as at present are attracted by any of the specialties.

It has ever been the boast of the profession that they have tried to elevate mankind to their own standard of scientific knowledge, and that improvements in the mental and physical hygiene of the race have been preceded by the discoveries of medicine. We must see to it that we lag not behind in our application of psychological methods to psychological disease or to functional symptoms in organic disease. Undeterred by the indifference of some in the high places of medicine, and equally uninfluenced by the exaggerated claims of the extremists and the absurdity of their attitude, we should seek to ensure that the new generation in medicine will at least have the chance of learning its psychotherapy under happier auspices, and in a different atmosphere than in the days that are passed.

War Nephritis.

The problems of military medicine are always changing. When one disease has been apparently scotched, another raises its head. Typhoid and dysentery were reduced to comparative impotence in this war, though veritable scourges in the South African war. Malaria has proved a more serious matter, while nephritis, so rare in warfare, assumed an epidemic form—so far as we know, only for the second time. Among the Allies it appeared first in Flanders among the British in March, 1915, but did not affect the French until July of the same year. Less common among the Belgians than either the French or the British, it was infrequent in the Italian army. The Germans first recognised it in the troops on the swamps at the Eastern front. It would be of great interest to know whether it appeared there earlier than on their Western front, in view of the suggested infective origin. It might be held that it is unlikely that an epidemic would start at two widely separate points, but, remembering the free transference of troops between East and West practised by the Germans, this argument can carry little weight, especially as it was the British observations which first called attention to the existence of the disease on the Western front. It is noteworthy that on both fronts it first appeared in swampy or flooded territory. Our authorities, with the coöperation of the Medical Research Committee, lost no time in investigating the disease. Wards were set aside for its observation at St. Bartholomew's Hospital, and a preliminary report was issued in the *Journal of the Royal Army Medical Corps* for July, 1915, by Dr. LANGDON BROWN. Both in France and in this country many observations were made, and in 1917 the Committee provided the services of Dr. HUGH MACLEAN, who designed and carried out in France an investigation of a far-reaching character. Captain DE WESSELOW and Captain J. A. WILSON were associated with this work and reports appeared from time to time. A final report has now been issued by Dr. MACLEAN in a convenient form, which embodies not only his own able and laborious research, but also a generous acknowledgment of the work of others.

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[1] The Lancet, 1919, ii., 1123.

That war nephritis could be due to military training seems, a priori, unlikely, since it has been an unusual accompaniment of wars in the past, and it occurred early in this war before the less fit population was drawn upon. But it is not sufficient to rely on a priori considerations, and it is well that Dr. MACLEAN has taken the opportunity to investigate this point fully, since it helps to throw light on the ætiology of nephritis in general. He examined 50,000 men who had practically completed their training, and found that not more than 2 per cent. gave any definite indication of kidney disease as indicated by the presence of albuminuria and a fairly large number of casts. Other definite signs of renal disease were found in about 1 per cent. The albuminuria produced by sudden severe exertion passes off on resting, and does not become any more marked with prolonged training. Nor does the incidence of albuminuria and casts tend to increase with length of service; it is, indeed, commoner in the younger soldiers from 18 to 20 or so. No relationship could be made out between albuminuria and previous occupation in civil life. The subsequent history of these 50,000 men is instructive. Only 161 were returned as possibly suffering from nephritis, and of these only 28 had shown albuminuria before going into the trenches. It is curious to note that the disease generally attacks its victims fairly quickly after their arrival in the trenches, for of these 161 49 became ill within two months, while within four months 106 cases had developed. This suggests that there may be some special liability in those affected, but the influence of training for active service can be eliminated as a factor in that liability; nor is pre-existing albuminuria responsible, since the majority of the men who contracted the disease were known to be free from albuminuria a short time before.

Reviewing the ætiology, MACLEAN agrees with LANGDON BROWN and others that exposure, water-supply, diet, alcohol, metallic poisons, and previous illnesses cannot be held responsible, and concludes that war nephritis is probably due to some special infective agent. But he shows that once the disease was established in the army there was a definite seasonal variation, the curve of incidence showing an inverse relationship to that of the temperature. But he holds that cold and exposure do not initiate the mischief, though they no doubt often aggravate it. There is evidence that slight but undoubted symptoms of nephritis, developing during the summer but not necessitating admission to hospital, may recur during the winter months in a severer form, and then for the first time figure in the statistics. That war nephritis is due to an infection cannot be regarded as definitely proved, since the various claims to have isolated the infective agent have never been confirmed. But if it were dependent on any circumstance connected with the war other than infection, it would almost certainly give a higher incidence in those with inadequate kidneys, which is not the case. It is interesting to note that a unit with a high incidence of nephritis at the front continued to show it for some time when at rest, which would indicate that when the infection is once established it persists apart from locality. Colonel A. B. SOLTAU found that when troops were stationed in certain localities which appeared to be more infected they developed a high rate of nephritis in course of time. MACLEAN adduces evidence suggesting the conveyance of the infection by means of body vermin—probably lice—and is of opinion that if this assumption is granted all the anomalies and difficulties in connexion with the ætiology of the disease disappear. That it is an epidemic infection associated with prolonged occupation of trenches is further suggested, as pointed out by LANGDON BROWN, by the conditions under which it appeared in the American Civil War, the only previous war in which nephritis occurred in an epidemic form. That the infective agent is a filter passer is probable but not proven. The very uniformity of the clinical symptoms may be taken as further suggesting a common infective origin. Later observers have added very little to the early descriptions. Dyspnœa, which is such an important symptom in war nephritis, remains its only special peculiarity, and is possibly due to the local lesions in the lung described by DUNN and MCNEE. The morbid anatomy may be summed up as an acute lesion in the form of blocking of the capillaries of the glomeruli and less marked changes in the epithelium of convoluted tubules of the kidney, accompanied by desquamation of epithelium in the bronchioles and pulmonary alveoli, with fibrinous deposits on the denuded surfaces.

It is noticeable that hydræmia was present in the majority of cases, and appeared to be closely connected with the rise of blood pressure. Cardiac enlargement chiefly occurred in those patients who had struggled on for some time before admission to a field ambulance, and was usually of a temporary character. Urea retention occurred in the earlier stages of moderately severe cases, but, as soon as the kidney lesion improved to some extent, this retained urea exerted its diuretic action with the result that marked polyuria occurred. There is a distinction between an azotæmic form showing little œdema, with the output of diastase and urea diminished, while that of the chlorides is normal, and a hydræmic form with œdema, normal output of diastase and urea, but that of chlorides much reduced. In the former type MACLEAN advises a low protein diet until nitrogenous retention disappears. In the latter he only restricts protein diet in the acute stages, but cuts off salt. He agrees with most other observers that stimulating diuretics are valueless; nor has he much to say about the benefit of any other drugs. Venesection for convulsions, hot-air baths and purgation for œdema, and gradual exercises in convalescence, all meet with his approval. The immediate mortality throughout was low—probably about 2 per cent. Dr. S. C. DYKE found complete recovery in 60 per cent., while in 40 per cent. the re-establishment of renal function was incomplete.

So far this report summarises in convenient form observations which in the main have already been published. But in addition four tests for renal efficiency are described. Three of these had been previously employed—the estimation of the urea in blood by Van Slyke's method, the estimation of urinary chlorides, and the estimation of urinary diastase introduced by WOLGEMUTH which was applied to the earlier cases in this epidemic by MACKENZIE WALLIS with marked success in determining prognosis. But the remaining one is new and simple, and may prove of value in ordinary nephritis. Fifteen grammes of urea are dissolved in 100 c.cm. of water, and the mixture flavoured with a few drops of tincture of orange. The patient empties his bladder and then drinks the solution. He empties it again one and two hours later, and the percentage of urea in these specimens is estimated by the hypobromite method. A concentration of 2 per cent. or more in the first specimen may be taken as evidence of an efficient kidney, rendering examination of the second unnecessary. A moderately efficient kidney may show a concentration of 1·5 per cent., while 1 per cent. or less means that the kidney is seriously damaged. It is claimed for this test that it has been of great value in assessing the degree of disability produced by war nephritis. The part played by Sir WALTER FLETCHER, the secretary of the Medical Research Committee, has been very valuable; his initiative and persistent interest in the subject have made this important series of observations possible.

MONYHULL COLONY FOR EPILEPTICS AND THE FEEBLE-MINDED.—Monyhull was during the war an important section of the 1st Southern General Hospital, which had taken over large buildings recently erected. These buildings will now revert to their proper use for epileptic and feeble-minded children, and form an addition to the older colony for adults. The committee have wisely expressed the view that great opportunities will be provided for investigation, and have decided to make arrangements for medical research. The colony will be the largest establishment of its kind in the country.

Annotations.

"Ne quid nimis."

SCIENCE AND INDUSTRY.

UNDER the stress of war, especially in the last two years, time-honoured prejudices yielded to a fuller and freer discussion of essential aims. As a result of this salutary process many kinds of industry came into more intimate touch with scientific research, which in its turn found new objectives of great interest. Science, in fact, began to rejoice in its heritage of vivifying and explaining the common things of life. Of the institutions in this country which contributed to this desirable result none earned a higher place than the Imperial College of Science and Technology at South Kensington. Enjoined by its Charter to train students in science, with special relation to the needs of industry, this college, on the recommendation of the Haldane Commission on University Education in London, became a constituent unit of London University in the faculty of science. In the final report of the Commission it was stated, in contrast with other foundations, that the Imperial College was so well equipped and so efficiently staffed that no further provision was held necessary in order to qualify it for inclusion as a constituent college of the University. At the same time the Royal Commission expressed a difficulty in regard to a faculty of technology. "It would be unfortunate," the report runs, "if the teaching of pure science were altogether removed from the college. It would be detrimental to the students by narrowing the range of intellectual interests represented among them, and equally detrimental to the technological teachers whose work is based upon the principles of pure science and who find in the investigations of the pure scientist the support and suggestions which lead to fresh applications of a practical kind." The hope was expressed in the report that the Committee for Technology should not organise their departments in a way detrimental to the faculty of science as a whole. The misgivings of the Commission do not seem, however, to have been realised quite in the way expected, for in a letter to the *Times* of Dec. 31st, over the signatures of 22 members of the professorial staff of the Imperial College, it is asserted that the college has, from its foundation, endeavoured to carry out the injunction to train students in science with special relation to the needs of industry, not by sacrificing the methods of science but by adapting them to specialised needs. The signatories, who number among them 13 Fellows of the Royal Society, claim that there is room both for the more academic and the more utilitarian aspects of science, and admit no fundamental deviation in principle involved in training with industrial needs in view. The brief period of association with the University of London has been felt by the college staff, not as a stimulus to scientific work, but as a drag upon the best prospects of development, and this feeling took the form of a deputation to Mr. Balfour and Mr. H. A. L. Fisher on Dec. 15th, when the case for the granting of its own degrees by the Imperial College was ably set forth by Professor W. W. Watts and others. The force and cogency of their arguments cannot be resisted, and upon them they build a plea that their specialised and independent curricula should lead to degrees granted on their own responsibility alone. The final science examinations of the University of London are different in plan and in character, with the result that second-rate students of the Imperial College may obtain first-rate degrees and vice versa. The needs of industry are so pressing, and its scientific development is changing so rapidly from year to year, and almost from month to month, that flexibility must be regarded as an essential part of any union of science and industry. Professor M. J. M. Hill, in a reply to the joint letter published in the *Times* of Jan. 3rd, states that public opinion is not yet ripe for dispensing with external examiners in science degrees, or, as another writer has put it, "branding your own herrings." Professor Hill suggests a modification of the statute allowing the examiners for the degree to consist of the student's teacher and an external examiner, plus a referee to act only in the event of a difference of opinion arising between the other two. It is doubtful whether such a liberal concession as this will now content the professorial staff of the Imperial College. They have a vision of science in relation to industry not less noble than the academic science of the last generation, and we have little doubt that they will attain their object. If they do so it may set the precedent for the disruption of the University, as Professor W. H. Bragg and Professor E. H. Starling plead for a similar release of University College and King's College from what they have in practice found to be a deterrent influence. Dr. H. E. Armstrong, in another contribution to this correspondence, would grant autonomy to each college, encouraging each to assume special features: the Imperial College as a centre for physical science and engineering, University College as a centre for biological science, King's College as a centre for arts. As this would mean that certain faculties might be unrepresented in a particular University strong resistance can be anticipated.

VACCINATION AND THE WAR.

IN the Swiss medical journal *Correspondenz-Blatt* of Dec. 4th, 1919, Professor G. Sobernheim, of Bern, contributes some observations on the behaviour of small-pox and vaccination among the Central Powers during the war, with special reference to precautions which may be requisite to keep small-pox out of Switzerland. Vaccination was again on its trial, the occasion was unique, and there was an experiment on the grandest scale. Once again the protective value of vaccination was proved beyond all shadow of doubt. It is chiefly as a source of illustrations of this thesis that Professor Sobernheim's ten pages of observations are of value. The German military machine had suffered from small-pox in 1870–71. Accordingly universal compulsory vaccination was installed in 1874 as a military measure. The testing time arrived, and the wisdom of the vaccination policy was abundantly vindicated. Dr. Sobernheim makes the interesting observation, for instance, that small-pox among the civil population in Berlin was a disease of older persons, in whom vaccination had partly worn out; in 1917 80 per cent. of the small-pox cases in Berlin were over 40 years of age. The younger people, in whom vaccination was recent, scarcely suffered at all from the disease. Another striking fact was the behaviour of small-pox among the various classes of Poles. Among many of the Jewish population hygiene was of a low standard; their houses were poor and insanitary; the inhabitants were dirty; typhoid and other infections were prevalent, with the exception of small-pox, which had a strikingly small incidence. Among other classes of Poles who were cleaner, more hygienic, and better circumstanced in sanitation generally, small-pox had a very heavy incidence. On a review of all the factors and circumstances which could bear on this remarkable difference in the incidence of small-pox, there was to be found only one explanation which could account for the phenomena—namely, the fact that the Jewish population was well vaccinated, the others were not. It was evidently a case of survival of the fittest, and the Jews, knowing how to look after themselves, survived.

As regards the incidence of infectious disease among the soldiers, the same events which occurred among British troops are related by Dr. Sobernheim to have occurred among the German troops—that is to say, it was recognised that individual hygiene was impossible; men could not possibly escape infection as they could in civil life, nor could cases of small-pox be isolated as they occurred. Therefore the only available expedient was to immunise the individual in order to make him efficient. This was done by revaccination on the soldiers joining up, and also, where necessary, in the camp and field. Vaccination of the civil population was less efficient. The result was seen in 1915, for instance. In that year small-pox attained such proportions in Austria that the deaths from it were 23,500 (giving a case-incidence of at least 100,000). But the disease did not spread in Germany. There was hardly more small-pox there than in peace-time. Dr. Sobernheim's paper also refers to the usual objections to vaccinations; he appreciates the protection enjoyed by Switzerland owing to the efficiency of vaccination in Germany; nevertheless he has important recommendations for Switzerland, which are well worth the notice of legislators here. Notes are added about the method of spread of infection, and about recent research into the nature of small-pox infection. Altogether a notable epidemiological contribution, if only for its appreciation of a fact imperfectly understood on this side of the Channel—namely, how much the work of army medical officers protected the civil population at home.

REFORM IN THE LAW OF DEATH CERTIFICATION.

RECENTLY in the House of Commons Mr. John Davison asked the Minister of Health whether, in connexion with his consideration of intended reforms in the present law of death certification, he would take note of the desirability of providing that no medical practitioner should certify a death without having first inspected the body, and that all deaths occurring suddenly after operations or vaccination or inoculation or drug injections should be reported to the coroner by the medical practitioner in attendance. To this question Dr. Addison replied that the points referred to should be considered. Doubtless, Mr. Davison meant more than his question implied. We are not aware that medical men do "certify *deaths*" without first inspecting the body; it is certainly not desirable that they should. On the other hand, that no medical man should certify as to the *cause* of death of a person under his care, whose death is reported to him, without satisfying himself by inspection that death has occurred, is quite another matter. At present, of course, a doctor is prohibited by statute from making any charge in respect of a certificate of the cause of death; but, if the State desires to cast further statutory duty and responsibility upon medical men, the discharge of such duty and responsibility will not be acceptable—we must speak frankly—unless the State provides for just remuneration, in certain cases at least, and removes the present proscription of fees from persons who are in a position to pay them.

The second portion of the question asked by the honourable Member for Smethwick contains a suggestion which, if carried into effect, would entail consequences that can hardly be foreseen by him. We do not envy the draftsman called to define the terms "suddenly" and "after," in this connexion, and if, as would appear probable, it is the desire of the honourable Member to impose some form of check on the professional treatment of persons undergoing it, we do not see why he does not suggest that *all* deaths occurring suddenly after treatment of any kind by a qualified medical man should be reported to the coroner, just as all sudden deaths occurring without treatment are now so reported. True, we should require many more coroners and should have many more inquests. But, in all seriousness, is it not obvious, if special surgical and medical procedures, when followed by the death that they have perhaps been undertaken to avert or postpone, are to involve, if not in every case a formal inquest, at least a coroner's officer's inquiry, that the public generally will be averse from sanctioning these procedures, and that doctors will hesitate to act without express sanction? We do not fear that any hasty or ill-considered legislative efforts will be initiated by the present Minister of Health; but there seems need for the public to be instructed, and, in the absence of such instruction, unwise or even foolish public demands are apt to become so insistent that ultimately "something" is "done" that would better have been left undone.

CAROTINÆMIA.

UNDER this title Dr. A. F. Hess and Dr. V. C. Myers,[1] of New York, describe a systemic pigmentation caused by the introduction of an excess of carotin in the food. The colouration is not confined to the face, but involves to a less extent the entire body, being most evident on the palms of the hands, which show also distinct signs of desquamation. The sclerotics are not at all affected. The urine is amber, and the stools are normally yellow. The two children in whom this new clinical picture was observed were receiving a daily ration of carrots in addition to new milk and cereal. On omission of the carrots from the diet the skin gradually lost its yellow colour, and in the course of some weeks regained its normal tint. The discolouration of the skin was accompanied by a similar yellow tinging of the blood serum and the plasma, the pigment in the blood being identified as carotin. As this substance is a constituent of almost all vegetable foods, the writers are of opinion that carotinæmia is not a rare occurrence, but has probably been frequently overlooked, confused with mild grades of icterus, or attributed to some obscure metabolic disturbance. They found that when carotin was injected subcutaneously, or given by mouth, the pigment appeared rapidly in the urine. This occurrence is of interest in view of the fact that there is a general tendency to regard urinary pigments as formed solely from bile or its derivatives.

THE VENTILATION OF SUBMARINES.

BOTH aeroplanes and submarines have introduced new physico-medical problems, or rather they have made of old physical problems matters of great medical importance at the present time. Two or three articles have appeared during the last 18 months in the French medical press on submarine hygiene, the most recent being a contribution by Dr. L. Brodier in the *Paris Médical* for Dec. 20th, 1919. The French submarines vary considerably in size, but an average air capacity appears to be about 400 cubic metres, which allows roughly 12 cubic metres per man. On a smooth sea, when the submarine is riding on the surface, a moderately efficient ventilation is afforded by the port-holes, but should the sea be at all choppy these openings must all be closed and an auxiliary system of ventilation becomes necessary. The American vessels have a ventilation pipe accompanying the periscope. The French submersibles are fitted with two "air sleeves." Fresh air is sucked through one and foul air expelled through the other by means of electric fans. When the boat is submerged new problems arise. Communication with the atmosphere is excluded. In addition, hydrogen evolved from the accumulators cannot be carried away, and as its proportion in the atmosphere rises the danger of explosion is increased—8 to 10 per cent. will be detonated by a spark from the motors. Other gases more directly poisonous are also contributed by the electric apparatus, as when sea-water coming into contact with a current is electrolysed, with the formation of chlorine. To complete the medley of evil odours it is only necessary to remember that all life must be carried on in this confined space. It is comforting to learn that, according to the researches of Kress, there are fewer bacteria present in this mixed atmosphere under water than when the boat is fully ventilated on the surface. The replenishment of oxygen is found to be one of the least of the difficulties to be overcome; 16 per cent is held to be the lower limit for oxygen content of the air. In the *Daphné* (380 cubic metres for a crew of 33 men) the oxygen content was found to be still 17 per cent. after a dive of 16 hours without oxygen replenishment. The elimination of carbon dioxide and poisonous gases is a more serious difficulty. In the experiment just quoted the *Daphné's* CO_2 content was found to have risen to 1·6 per cent. in six hours only, the limit being considered as 3 per cent. Many of the methods used for purifying the atmosphere are still kept secret by the various powers, but one or two are disclosed in Dr. Brodier's paper, the German and Italian methods being described in some detail. The principal in each case is to pass the vitiated air over some chemical mixture which will absorb the impurities. Arsenuretted hydrogen is a special danger. The English accumulators are made of selected metal from which every trace of arsenic has been eliminated. In addition, each chamber is adorned with paper treated with bichloride of mercury to detect traces of this dangerous gas in the atmosphere. The French meet the danger by including potassium permanganate amongst the chemicals over which the impure air is passed. The danger of fire from explosion would appear to be ever present, and, in the German submarines at least, fire extinguishers are furnished in every compartment.

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[1] Journal of the American Medical Association, Dec. 6th, 1919.

OLD-AGE PENSIONS IN 1920.

THE increased price of the necessaries of life rendered imperative some increase in old-age pensions, which were originally fixed by an Act of Parliament passed in 1908, and the opportunity has been taken to introduce a few administrative improvements to a measure already amended in 1911. In the financial circumstances produced by the war it could hardly be expected that an augmentation would be granted upon a scale that would substantially improve the situation of pensioners as compared with that prevailing before August, 1914, but the maximum pension is now doubled, and allowance is made for the diminished purchasing power of any income already enjoyed by the recipient, the improved pension taking the place of the weekly 2*s.* 6*d.* recently given as an additional allowance. Under the old scheme the full weekly pension of 5*s.* was given where the yearly means of the pensioner did not exceed £21, and no pension was allowed where they exceeded £31 10*s.* Under the new scheme a sum of 10*s.* is allowed where the existing means do not exceed £26 5*s.*, and the claim to a pension on a sliding scale exists up to the point where there is an independent income exceeding £49 17*s.* 6*d.* The sliding scale for those having incomes between the lowest and highest above mentioned is proportionate, the amounts being between £26 5*s.* and £31 10*s.*, eight shillings per week; £31 10*s.*–£36 15*s.*, six shillings; £36 15*s.*–£42, four shillings; £42–£47 5*s.*, two shillings; and £47 5*s.*–£49 17*s.* 6*d.*, one shilling. The disqualifications attaching to the receipt of poor relief are reduced, and are stated in a circular issued by the Ministry of Health, the department now responsible, to explain these and various other changes effected by the Act of 1919, now in force.

> "A person will not in future be disqualified for receiving or continuing to receive an old-age pension by reason of the receipt of outdoor relief. A person who has become an inmate of any workhouse or other Poor-law institution will be disqualified for receiving, or continuing to receive, a pension while he is an inmate, subject, however, to the proviso that a person who enters a Poor-law institution for the purpose of obtaining medical or surgical treatment, will not, during a period of three months, if he so long continues to require such treatment, be disqualified on the ground only that he is an inmate of a Poor-law institution."

It must certainly be admitted that the Acts of 1911 and 1919 have considerably improved the original law under which a claimant was once refused a pension who had been an inmate of an infirmary, and had been removed from it to the workouse at the request of the doctor under whose care she was, in order to make room for urgent cases, and who, after being treated at the workhouse for seven or eight weeks, was discharged cured. Another claimant, when the Act of 1908 came into force, was refused a pension because while he was in a hospital in December, 1908, his wife had had to obtain outdoor relief! Mr. H. J. Hoare, in his small book on Old Age Pensions,[1] from which we have taken the above examples, proposed the refusal of pensions to persons so dirty and verminous as to suggest their inability to exist with reasonable decency upon the pension. The sum allowed is still so small that old people not able to obtain any addition to it will hardly be able to support themselves, but apparently they are still to be left to select for themselves the moment when they will give up the unequal struggle against penury and its results. Mr. Hoare in 1915 could find few recommendations to make for bettering the existing Acts, and having considerable experience of their administration in the neighbourhood of London was of the opinion that they worked smoothly and well. The recent amendments are indeed not likely to be improved upon until the Treasury finds itself able to sanction a considerable increase in expenditure, a consummation not likely to be realised for some time. It is possible, however, to hope for, rather than to predict, an automatic amelioration of the lot of the old-age pensioner through an eventual fall in some, at least, of the prevailing prices.

JUVENILE EMPLOYMENT.[1]

THE period covered by this report was, perhaps, the most critical one of the war, when the problem was rather the extent to which all workers could contribute to the national effort than the way in which industrial conditions could be modified to benefit the juvenile worker. Whilst the demand for boy and girl labour was greater than in normal times, the openings offered were inferior; the employment available, notably munition work and clerical work in Government departments, did not offer any training for the future. The use of schools as hospitals necessitated the occupation of other school buildings by two schools, so that the children could only be accommodated half of each day, with the result that many of the children filled in the other half with employment. The system of testing applicants for certain employments plainly showed that the school leaver from a half-time school was inferior in ability and general intelligence to children who had been attending a full-time school. Now that the bad times are over the Cardiff Education Committee hope that much can be accomplished in the training of juveniles for crafts and occupations by taking individual trades or groups of kindred trades and thoroughly overhauling the system, standardising wages and conditions, and making apprenticeships more attractive as compared with casual and cul-de-sac employments. The children from the poorer parts of the city display an amazing lack of knowledge of anything outside their own restricted district. To remedy this defect in a measure arrangements have been entered into with a number of employers for small parties of senior pupils to be conducted round works and factories. Apart from the question of employment, the educational value of such visits is considerable.

The neglected boy who spends most of his leisure time in the streets constitutes a special problem. Two of the care committees of the district have been able to organise boys' clubs, which have proved successful in dealing with this class of boy. In connexion with the larger club it is proposed to organise a working boys' home, especially for boys who have come to Cardiff to find work or to secure a berth at sea. Unfortunately, during the period under report, despite efforts made, no progress can be reported in the direction of increasing the facilities for training boys for the sea. Yet such a scheme would eventually restrict the number of foreigners employed in our mercantile marine and promote a freer and more ready recruitment of boys into a useful and profitable occupation; boys who now often become ne'er-do-wells would have a chance of developing into useful members of society. The work of the school medical service in Cardiff has proved very useful in connexion with juvenile employment by reason of the valuable information given for every boy and girl dealt with, and the facilities available for special advice and examination of difficult individual cases. The need of work on behalf of children after leaving school is pressing everywhere; obviously in Cardiff good work has already been done by voluntary effort guided by expert organisation, and the directions in which this work can, and should, be extended are indicated.

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[1] THE LANCET, 1916, i., 84.

[1] Report of the Juvenile Employment and Central Care Committee of the City of Cardiff Education Committee, 1917–1918 and 1918–1919.

ANTHRAX IN BRUSHES.

By a provision of the Factory and Workshops Act of 1901 cases of industrial infection with anthrax were made notifiable to the chief inspector of factories at the Home Office. Dr. T. M. Legge, in his Milroy lectures four years later, dealt with 261 cases and 67 fatalities which had come before his official notice up to 1905. Of these, 70 cases with 17 deaths had to do with infection from hair and bristles. This particular source of infection has been attracting increasing attention since the incrimination of the shaving brush. The first case in which the shaving brush was definitely proved to be the lethal agent was recorded by Dr. R. R. Elworthy, then pathologist to the West London Hospital, in our own columns (Jan. 1st, 1916). At the instance of the Local Government Board a prolonged investigation was made by Dr. F. J. H. Coutts, which appeared in a volume of Reports on Public Health Subjects in 1917. Dr. Coutts found that brushes of home manufacture were implicated, as well as those imported from Canada, America, and Japan. Administrative action was taken upon this report, but the Ministry of Health announce that cases of anthrax are still occurring in this country, two of which have recently proved fatal. In a substantial proportion of the cases infection has been traced to new shaving brushes imported from Japan. Samples taken from several consignments of Japanese brushes have been found to contain anthrax spores. As several consignments of these brushes have already been distributed it is impossible for steps to be taken to discover them all. Intending purchasers are therefore advised by the Ministry to ask for an assurance that the brush offered for sale is not one of a batch recently imported from Japan. Any person in doubt as to a brush in his possession may diminish the risk by adopting the following procedure, although the Ministry does not suggest that any such process affords a certain safeguard against infection:—

> Thoroughly wash the hair of the shaving-brush with soap and warm water, to which a little washing soda has been added, rinse in warm water, and then immerse for one hour in a disinfecting solution consisting of two tablespoonfuls of formalin in half a pint of water. The disinfecting solution should be at a temperature slightly above the body heat. After removal from the solution the brush should be allowed to dry before use. In carrying out the above, care should be taken not to allow the hair of the brush to come in contact with the hands.

In the meantime, and until infected shaving brushes have been excluded from the market, it may be remembered with satisfaction that a brush is by no means an indispensable tool for a successful shave.

THE CAMBRIDGE DIPLOMA IN RADIOLOGY.

Radiology is gradually taking up the position in the practice of medicine which its importance requires. In commenting in The Lancet of Oct. 25th, 1919, upon Dr. A. E. Barclay's presidential address before the Section of Electro-Therapeutics of the Royal Society of Medicine we anticipated the practical recognition of this fact by one of the older universities. On Jan. 19th next, courses begin at Cambridge for the new diploma in radiology and electrology, set up by Statute on June 17th of last year. The course of study for the diploma extends over a period of six months or more, and includes both lectures and clinical instruction. The lecture course in Part I. consists of physics and electro-technics with photography; in Part II., radiology and electrology, in each case with special reference to both diagnosis and therapy. Six months clinical experience is required in the electrical department of a hospital recognised by a committee of the State Medicine Syndicate; for this purpose all the larger London teaching hospitals are eligible, as well as the Cancer and Consumption Hospitals at Brompton. Apart from examination, the diploma may also be granted to a medical practitioner of not less than ten years' standing who has been engaged for at least half that time in the practice of medical radiology at a recognised hospital, on presentation of a dissertation which may include work already published. Similar courses will be given in London and other centres as the demand for them arises. The actual arrangements, as far as at present fixed, are noted in another column. It is time that the subject, too long the playground of empiricism, should come under the discipline of a teaching faculty.

The offices of Epsom College have been transferred from 37, Soho-square, W., to 49, Bedford-square, W.C. 1, owing to the expiration of the lease of the former house.

The compulsory notification of cases of acute encephalitis lethargica and acute polio-encephalitis, in force since January, 1919, has been extended until further notice by order of the Minister of Health, dated Dec. 31st, 1919.

The arrangements are now far forward for the formation of university units at two more metropolitan teaching hospitals—namely, St. Thomas's and University College. The appointments made in these connexions have for long been an open secret. At St. Thomas's Hospital Dr. E. H. Starling, professor of physiology at University College, becomes the director of the medical element, a capital appointment because it emphasises the close relations that physiology possesses with modern medicine. At this hospital Sir Cuthbert Wallace, surgeon to the hospital, will be the director of the surgical element. Mr. C. C. Choyce's name is given as the director of the surgical element at University College Hospital, where Dr. T. R. Elliott will be the director of the medical element.

INDEX TO "THE LANCET," Vol. II., 1919.

The Index and Title-page to Vol. II., 1919, which was completed with the issue of Dec. 27th, will be published in The Lancet of Jan. 17th.

THE DYING-OUT OF NATIVE RACES.

By W. H. R. RIVERS, M.D., F.R.S.

(Concluded from p. 44.)

European Influence on Native Customs.

I COME to a more serious cause when I consider European influence upon native customs. I begin with one which excites perennial interest whenever native welfare is discussed. Before the advent of Europeans many Melanesians went wholly nude or wore only garments, if they can be so called, which fulfilled neither of the two chief purposes for which the clothing of civilised people is designed. In other parts the native clothing consisted of petticoats, loincloths, or other simple garments thoroughly adapted to the necessities of the climate. One of the first results of European influence was the adoption of the clothing of the visitors, and clothes were adopted in such a manner as to accentuate the evils which they necessarily brought with them. The Melanesian is not really uncleanly. He bathes frequently, and where he preserves his native mode of clothing his ablutions are amply sufficient for cleanliness. When he wears European garments he fails to adopt measures, such as the frequent change of clothing, which then become necessary. He continues to bathe in his clothes, and instead of changing his garments frequently wears them continuously till they are ragged, and even when new clothing is obtained it is put on over the old.

It is a great mistake, often made, to blame the missionaries for this use of foreign clothing. It is true that its use was directly encouraged by the early missionaries, but this encouragement was unnecessary. To the native, trousers and coats are the distinctive marks of the white man, and nothing short of prohibition could have prevented their use. Where we now see the missionaries to have been at fault is that they did not recognise the evil of the innovation and set themselves steadily to minimise it, and insist upon attendance to the elementary principles of the hygiene which the use of clothes involves.

At the present time the influence of missionaries is steadily directed to this end. Having been privileged to live among missionaries of different schools of thought in Melanesia, I can testify that no subject is more frequently discussed and more thoroughly and anxiously considered than how to lessen the use and njurious influence of European clothing.

Another modification of native custom, which is less widely recognised, but in my experience quite as much in need of consideration at the present time, is housing. The native Melanesian house is usually rainproof and of good proportions, while owing to its mode of construction it is well ventilated and thoroughly adapted to the climate. Instead of being content with houses of similar construction or with houses of the kind used by Europeans living in other tropical countries, settlers have built houses with impermeable walls and very imperfect means of ventilation. These have in some cases been copied by the natives or even built by the missionaries for the use of their followers. Such buildings might have been specially devised for the propagation of tubercle, and if they are allowed to be built will certainly increase the already far too heavy ravages of this disease.

The modifications of housing and clothing which I have just considered touch especially the material side of life. I have now to consider a number of modifications and interferences with native custom which I believe to have been quite as important, if not even more important, in the production of native decadence. When Melanesia became subject to Europeans, magistrates and missionaries were sent to rule and direct the lives of the people. They found in existence a number of institutions and customs which were, or seemed to them to be, contrary to the principles of morality. Such customs were usually forbidden without any inquiry into their real nature, without knowledge of the part they took in native life, and without any attempt to discriminate between their good and bad elements. Thus, in the Solomon Islands, the rulers stopped the special kind of warfare known as head-hunting, without at all appreciating the vast place it took in the religious and ceremonial lives of the people, without realising the gap it would leave in their daily interests, a blank far more extensive than that due to the mere cessation of a mode of warfare. Again, in Fiji, the custom according to which the men of the community slept apart from the women in a special house, a widespread custom in Melanesia, seemed to the missionaries contrary to the ideals of the Christian family, and the custom was stopped or discouraged without it being realised that it formed a most effectual check on too free intercourse between the sexes.

In the New Hebrides, again, the missionaries put an end to, or where they did not destroy treated with a barely veiled contempt, a highly complicated organisation arising out of beliefs connected with the cult of dead ancestors. In some cases it was apparently enough that the institution, with all its elaborate ceremonial, was heathen and prejudiced church attendance, while elsewhere stress was laid on occasional revels and dances which gave opportunity for licence. It was not recognised that in forbidding or discouraging without inquiry they were destroying institutions which had the most far-reaching ramifications through the social and economic life of the people. I have called attention to this subject elsewhere in an essay on the Government of subject peoples in the Cambridge collection of essays, entitled "Science and the Nation." I have there pointed out that if these and similar institutions had been studied before they were destroyed or discouraged, it would have been found possible to discriminate between those features which were noxious and needed repression or amendment and those which were beneficial to the welfare of the community. Even if their destruction were still deemed necessary, something could have been done to replace the social sanctions of which the people were thus deprived. The point I wish to emphasise is that through this unintelligent and undiscriminating action towards native institutions the people were deprived of nearly all that gave interest to their lives.

Loss of Interest in Life the Cause of Native Decadence.

I have now to suggest that this loss of interest forms one of the reasons, if indeed it be not the most potent of all the reasons, to which the native decadence is due. It may at first sight seem far-fetched to suppose that such a factor as loss of interest in life could ever produce the dying-out of a people, but my own observations have led me to the conclusion that its influence is so great that it can hardly be overrated, and I venture, therefore, to consider it at some length.

When you inquire of those who have lived long in Melanesia concerning the illness and mortality of the natives, you are struck by the frequency of reference to the ease with which the native dies. Over and over again one is told of a native who seemed hale and well until, after a day or two of some apparently trivial illness, he gives up the ghost without any of the signs which among ourselves give ample warning of the impending fate. A native who is ill loses heart at once. He has no desire to live, and perhaps announces that he is going to die when the onlooker can see no ground for his belief.

The matter becomes more easy to understand if we consider the ease with which the people are killed by magic, or as the result of the infraction of a taboo. The evidence is overwhelming that such people as the Melanesians will sicken and die in a few hours or days if they believe that an enemy has chosen them as the victim of his spells, or that they have, wittingly or unwittingly, offended against some religious taboo. If people who are interested in life and do not wish to die can be killed in a few days or even hours by a mere belief, it becomes much more easy to understand that a people who have lost all interest in life should become the prey of any morbid agency acting through the body as well as through the mind. It is this knowledge of the enormous influence of the mind upon the body among the Melanesians and other lowly peoples that first led me to attach so much importance to loss of interest as the primary cause of their dying out. Once this belief has been formulated there is seen to be much definite evidence in Melanesia to support it.

Certain islands and districts of Melanesia show a degree of vitality in striking contrast with the rest. These exceptional cases fall into two classes: one includes those islands or parts of islands where the people have so far been fierce and strong enough to withstand European influence. There are still parts of Melanesia which as yet the footprint of the white man has not reached, and others where, after successful encounters with punitive expeditions, the people still believe themselves to be a match for the invader. Here the old zest and interest in life persist and the people are still vigorous and abundant.

The other group of peoples who show signs of vitality are those who have adopted Christianity, not merely because it is the religion of the powerful white man, but with a whole-hearted enthusiasm which has given them a renewed interest in life. Here the numbers are increasing after an initial drop. Christianity and the occupations connected with it have given the people a new interest to replace that of their indigenous culture, and with this interest has come the desire to live.

The special point I wish to make to-day is that in my belief interest in life is the primary factor in the welfare of a people. The new diseases and poisons, the innovations in clothing, housing, and feeding, are only the immediate and more obvious causes of mortality. It is the loss of interest in life underlying these more obvious causes which gives them their potency for evil and allows them to work such ravages upon life and health.

Influences Decreasing the Birth-rate.

I can now pass to the second of the two groups of influences by which a people decline in number. I have so far dealt only with those which increase the death-rate. I have still to consider those which produce decline by diminishing the birth-rate. I must begin by stating briefly the evidence that this factor has played and is playing a part in the dying-out of the Melanesians. Here, as in the case of the death-rate, I can offer you no positive statistics derived from a record of births. My evidence is chiefly the result of a means of inquiry adopted originally for purely scientific purposes. When in Torres Straits with Dr. Haddon 20 years ago I discovered that the people preserved in their memories with great fidelity a full and accurate record of their descent and relationships. It was possible to collect pedigrees so ample in all collateral lines that they could serve as a source of statistical inquiry into such features as the average size of a family, infant mortality, and other subjects which furnish the basis for conclusions concerning the fluctuations of population. I have found this interest in genealogy wherever I have worked, and the collection of pedigrees has always formed the basis of my inquiries. In Melanesia this instrument shows conclusively that the fall in numbers is due quite as much to decrease of the birth-rate as to increase of the death-rate. I cannot here go into the evidence in any detail; I must be content with an example from the people of Vulua in Santo, a people whose decline has been mentioned as having been watched by Mr. Bowie during the last 20 years.

About 80 years ago, when Santo was comparatively untouched by outside influences, a man named Rathati married. He had four children, whose marriages gave Rathati 15 grandchildren, of whom my informant, a man verging towards middle life, was the sole survivor. Of these 15 grandchildren, ten grew to adult age and married, but only two of these unions produced offspring. One married couple had a boy who died in infancy, while another had three children. These three children, the great-grandchildren of Rathati, married, but none had offspring, so that a family, once rapidly growing in numbers, closed its career with a monotonous record of sterile marriages.

A similar frequency of childless marriages occurs in the pedigrees of other islands where the population is decreasing, not only in the New Hebrides, but also in the Solomons, showing definitely that lowered birth-rate must rank with enhanced death-rate as at least an equally important factor in the dying-out of the people.

Voluntary Restriction of Birth-rate.

I need only consider briefly the agencies to which this decline is due. It is well known that certain forms of venereal disease tend to produce sterility, and it is noteworthy that the dying-out of the people of Vulua is ascribed by their neighbours to the ravages of such disease brought with them by returning labourers from Queensland. There is little doubt, however, that if we take Melanesia as a whole, causes of this kind are trivial or of slight importance as compared with voluntary restriction. Throughout Melanesia the people are acquainted with various means of producing abortion, and practise measures which they believe to prevent conception, and processes of this kind form the main agencies in lowering the birth-rate. We have here only another effect of the loss of interest in life which I have held to be so potent in enhancing mortality. The people say themselves: "Why should we bring children into the world only to work for the white man?" Measures which before the coming of the European were used chiefly to prevent illegitimacy have become the instrument of racial suicide.

Reaction to New Interests.

It is satisfactory that before I leave this subject I am able to point to a brighter side. I have already said that in certain parts of Melanesia the downward movement in numbers has been arrested, and that the people now show signs of growth. I mentioned also that this was occurring especially in islands where the people have really taken to heart the lessons of their Christian teachers. I collected pedigrees from several such islands, and they tell a tale vastly different from the miserable record of Vulua. A man of the little island of Makura named Masosopo, who married about 70 years ago, had three children and nine grandchildren, and there are already 14 great-grandchildren, with a prospect of more to come, a striking contrast with the impending disappearance of the Vulua family. A couple who married about the same time in Nguna now have living and thriving 23 descendants, while in other islands I have records of families of from 8 to 10 in number.

The teachings of the missionaries concerning the evils of racial suicide have probably contributed to this recovery, but there is little doubt that its chief cause has been that their new religion has given to the people an interest in life which has again made it worth while to bring children into the world.

Effect of Labour Traffic.

Those here who know anything of Melanesia and its circumstances will have wondered why I have so far said nothing about the cause of depopulation which might well be put before all others for the potency of its evil influence. I have so far left the labour traffic on one side, partly because, had I once started upon it, I should have been tempted to devote the whole lecture to its far-reaching and deeply penetrating influence. My chief reason, however, was that it has seemed better to choose those of the circumstances of Melanesia which illustrate general problems and to leave on one side a factor which, though peculiarly potent in the case of Melanesia, is fortunately of far less general application. It would, however, be quite unfitting to leave the labour traffic wholly on one side.

In the first place it is well that we are able to distinguish between the traffic as it was and as it is. It would be difficult to exaggerate the evil influence of the process by which the natives of Melanesia were taken to Australia and elsewhere to labour for the white man. It forms one of the blackest of civilisation's crimes. Not least among its evils was the manner of its ending, when large numbers of people who had learnt by many years' experience to adapt themselves to civilised ways were, in the process of so-called repatriation, thrust back into savagery without help of any kind. The misery thus caused, with the resulting disaffection, not only underlies most of the open troubles in the recent history of Melanesia, but by the production of a state of helplessness and hopelessness has contributed as much as any other factor to the decline of the population.

I must not, however, dwell on the crimes and mistakes of the past. My object to-day is to call attention to existing evils in the hope that they may be remedied before it is too late. At the present time Melanesians are only recruited as labourers to work within the confines of Melanesia, and both the recruitment and the conditions of labour are subject to Government control. Its grosser evils have been removed, at any rate in those parts of Melanesia which are wholly governed by Great Britain. But, however closely and wisely the traffic is controlled, the removal from their own homes of the younger men of a declining population is not a factor which can tend to arrest the decline or convert it into a movement in the opposite direction. Even in its vastly improved form, and limited to Melanesia though it be, the labour traffic continues to act as a cause of depopulation. Not only does it act directly by taking men away from their homes when they should be marrying and producing children, but it also fails in that it provides no real basis for that zest in life upon the importance of which I have already so fully dwelt. Other evils are that the traffic as at present conducted tends to spread disease and to undermine an influence which I believe to be at the present time the most potent for good in Melanesia, the work of the missionaries. I cannot stay to point out exactly how the traffic works to the detriment of native progress. I must be content to state again that aspect which brings it into relation with the main thesis of this lecture. It fails to give the people that interest in life which I believe to form the most essential factor in maintaining the health of a people.

Restoration or Replacement of Interests as the Sole Remedy.

I have dwelt at such length on the nature and causes of the decline of the population of Melanesia that I have left myself but little time to consider the treatment for the malady from which the peoples of this region are suffering. I make no apology, however, for this. One of my teachers in medicine, Dr. Gee, used to quote the saying[1]: "Medicine has three parts; the first is diagnosis; the second is diagnosis; and the third is diagnosis." This saying is just as true of the medicine of society as of the medicine of the individual. By diagnosis Dr. Gee did not mean, nor do I mean, the process by which we give a name to a disease. The word connotes the whole process by means of which we come to understand the nature of each individual case of disease, and analyse into its elements the complex web of agencies by which the morbid state has been produced. Taken in this wide sense, this lecture has thus far dealt wholly with the process of diagnosis. The more complete this diagnosis, the more obvious becomes the treatment and the less necessary to go into it at length. If I am right in my diagnosis it is easy to see the general lines which treatment should take.

I shall pass with a mere mention those lines of treatment, dictated by the ordinary principles of hygiene, by means of which faults of clothing, housing, and feeding may be remedied, and shall confine my attention to the factor which I believe to stand first and foremost among the causes of the dying-out of the Melanesian—the loss of interest in life from which at present he is suffering.

The main problem of treatment is how far it is possible to restore the old interests or maintain them where they have not yet been destroyed, and how far they must be replaced by others. As I have already mentioned, there are still parts of Melanesia where the old life persists with but little change, and it would be an interesting experiment to see how far it is possible in these places to maintain the old interests and make them the foundation on which to build a culture which would not conflict with that of the people who have become their rulers. I have dealt with this subject in the essay on "The Government of Subject Peoples," already mentioned. I will only reiterate here the main conclusion of that essay, that any attempt to govern a people even partially on the lines of their own culture demands knowledge on the part of the rulers, knowledge which at present they do not possess, and in general make no effort to attain.

I will, therefore, only refer to-day to the second alternative, how we may replace old interests by new. To one such new interest, that of religion, I have already referred. The old life of the people was permeated through and through by interests of a religious kind, based on a profound belief in continued existence after death and the influence of the dead upon the living. Experience shows that Christianity is capable of giving the people an interest in life which takes the place of that due to their indigenous religion. Man cannot or should not, however, live upon religion alone. It is necessary to find something to take the place of the old economic interests also. At the present time, throughout the greater part of Melanesia, the people either give their work wholly for others on plantations or grow just the few coconuts which are necessary to produce certain luxuries, such as calico and tobacco, gramophones and tinned meat.

The chief need in Melanesia is to give the native a more real interest in the economic development of his country. The Melanesian is a keen trader, and there are cases in the New Hebrides in which he has shown much ability when he has entered as an ordinary trader into competition with the European. There is no question that if he were given a fair chance he could take an important part in any organisation which had as its object the encouragement of native industry. Until recently the missionary societies of Melanesia have made no attempt at industrial development, either to encourage the old industries or to introduce new, and the Government has done even less in this direction. The only neighbouring region where anything of the kind has been done is in Torres Straits, where "The Papuan Industries Company" has endeavoured, with a fair degree of success, to give to the natives that share in the management of the industries of their country which is the best means of bringing back the old interest and zest in life. In other parts of the world, and pre-eminently in West Africa, such movements have had the most striking success, and there is no reason why the success should not be as great in Melanesia.

Among the many problems which await our rulers when they are able to turn their thoughts from more pressing matters is the industrial development of the tropics. For this purpose labour is necessary, and experience shows that this labour comes most naturally and most profitably from those in whom long generations have brought about a physical development adapted to tropical conditions. The main object of this lecture has been to draw attention to a psychical aspect of the problem. The indigenous inhabitants of tropical countries will not thrive, they will in some cases, as we have seen, not even live, unless they are interested in life, and this factor of interest must be taken into account by those upon whom falls the task of organising the development of tropical industry.

Though this utilitarian aim must of necessity be prominent in the organisation of tropical industry, there is another reason which should compel us to give to the natives of tropical countries a real interest in their own social and economic development. If we in the late war gave our best blood on behalf of oppressed nationalities and in the cause of freedom, it should be equally impossible to pass over the rights of such peoples as the Melanesians. I have tried to show in this lecture that the fundamental right, the right to exist, is being threatened in their case. If there is any truth in this view the peril may be averted, and averted by giving back to them that interest in life which we have, often unwittingly, destroyed.

Mr. G. S. A. Waylen has resigned the post of district medical officer and workhouse medical officer of the Devizes Union after 30 years' service.

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[1] I have been unable to discover to whom this aphorism is originally due.

THE NEED FOR REWARDS FOR MEDICAL DISCOVERY.

THE following report (dated Dec. 22nd, 1919) has been presented by the Joint Committee of the British Medical Association and the British Science Guild on awards for medical discovery :—

1. *Definitions.*

Medical discovery may here be defined as being: (1) The ascertainment of new facts or theorems bearing on the human body in health, and the nature, prevention, cure, or mitigation of injuries and diseases of human beings. (2) The invention of new methods or instruments for the improvement of sanitary, medical, and surgical practice, or of scientific and pathological work.

2. *Reasons for Rewarding Medical Discovery.*

These are: (1) To encourage medical investigation. (2) To discharge a moral obligation incurred by the public for its use of private effort.

3. *Various Possible Types of Rewards.*

(1) Titles and honours given by the State, by universities, and by other public bodies. (2) Prizes and medals. (3) Patents. (4) Promotions and appointments. (5) Pecuniary awards by the State.

4. *General Principles of Assessment.*

It will probably be agreed that in the interests of the public all medical discoveries should, if possible, receive some kind of acknowledgment or recompense. But in view of the very variable conditions, nature, and effects of particular investigations, it will often be difficult to assess the kind of recompense most suitable for each. In the first place, a distinction should be drawn between *compensation* and *reward*. By *compensation* is meant an *act of justice* done for the purpose of reimbursement of losses; by *reward, an act of grace* in appreciation of services rendered.

The following different cases should next be considered :—

(A) Discoveries involving pecuniary or other loss to an investigator, either by direct monetary sacrifice, or by expenditure of time, or by diminution of professional practice, without corresponding pecuniary gains. A great example is that of Edward Jenner, who occupied himself so closely with the investigation of vaccination against smallpox that he lost most of his medical practice and also considerable sums in expenses. The plea for compensation in such cases is unanswerable; and in 1802 and 1807 Parliament fully acknowledged its obligations under this head by giving Jenner compensation in two sums of £10,000 and £20,000.

(B) Discoveries which have increased the professional emoluments of the investigator by enhanced practice or other means. Such are, frequently, improvements in surgical operations or medical treatment, which lead to increased practice. Another case is that of serums, &c., which may have been protected and put on the market. Here compensation cannot be demanded and pecuniary awards may be generally held to be unnecessary. On the other hand, honours are often, and justly, bestowed upon such work.

(C) Discoveries which involve neither gain nor loss to the investigator. This class includes most of the good, and sometimes great, clinical, pathological, and sanitary discoveries achieved in the world. Here also compensation can scarcely be demanded, and honours are already often given; but pecuniary awards should be sometimes bestowed as an act of grace when the value of a discovery to the public (or to a government) greatly exceeds the emoluments of the investigator; and this principle should hold even in the case who were directly paid for undertaking the researches which led to their discoveries—especially when such payment was (as usual) small, and the resulting discovery great.

The following particular cases, which sometimes occur, should be specifically noted: (1) Men who have refused lucrative posts in order to complete their researches. (2) Men who have refused to protect their work for fear of limiting its application. (3) Men who have carried out investigations for governments for little or no payment, on patriotic grounds.

The following considerations must generally be borne in mind :—

(*a*) Honours (which are always much esteemed) are usually given as much (or more) for clinical success as for medical discoveries, though the latter possess a far wider influence and application than do the former.

(*b*) When given for clinical work or for discoveries under Class B, honours often confer distinct pecuniary advantages by enhancement of practice, but for discoveries under Classes A and C they have no such effect, and cases are on record where they tend to reduce emoluments by unfitting recipients for certain posts.

(*c*) Most people enter the medical profession (at considerable expense) not only from altruistic motives, but also to make a living; and it is usually only at a later period that they take up scientific investigation—either from a sense of duty, or from predilection, or merely because a good opportunity offers. When, therefore, a man finds that his scientific work, however successful and important it may have been, has actually yielded him less emolument than he might have obtained from ordinary clinical work, he feels naturally discouraged; and his experience prevents young men of ability from following his example, and therefore tends to check the prosecution of studies which are of the highest value to humanity.

(*d*) In the public interest, then, this Committee begs to insist upon the principles: (1) That no medical discovery should be allowed to entail financial loss upon him who has made it. (2) That the compensation or reward which he deserves should be assessed as being equal to the difference between the emoluments which he has actually received and those which a successful clinician might have received in the same time.

This is obviously the principle which was accepted by Parliament in the case of Jenner in 1802 and 1807.

Additional reasons for insisting upon this principle are: (1) That few medical discoveries are patentable. (2) That such discoveries seldom give good grounds for promotion or for administrative appointments in the public services.

5. *Particular Assessments.*

Whether a particular discovery should receive a large or small assessment will depend not only on the considerations given above, but also on the following :—

(1) *Width of application.*—For example, the work of many of the older anatomists, physiologists, and parasitologists, of Pasteur, and of investigators of immunity, have affected most recent discovery. Discoveries on widespread diseases, such as the work of Lister, of Laveran, and of Koch, are often, though not always, more important than those on more limited maladies.

(2) *Difficulty of the work done.*—For example, the solution of a difficult problem requires more study and also more time and cost, and therefore deserves more recompense than a lucky chance observation.

(3) *Immediate practical utility.*—A strong plea for State remuneration can be made on behalf of cases of this kind, unless they come under Class B. It is strange that at present they never receive it, while academical recognition is also often not forthcoming for them.

(4) *Scientific importance.*—Discoveries which are not of present practical utility may become so at any moment, and should obviously be included in the scheme, if they are sound and of wide application.

Medical discoveries made by persons who do not themselves belong to the medical profession should be included in all schemes of reward. Of course, each case must be judged on its merits, and the assessment will not always be easy.

6. *State Awards for Medical Discovery.*

Honours, prizes, and medals, being bestowed by H.M. the King or by public bodies and learned societies, are acts of grace which are generally given after much consideration; and the Committee does not purpose to consider them. But the subject of *pecuniary awards* lies entirely within its province. During the last few years the British Government has disbursed an annual grant of about £60,000, under the Medical Research Committee, for subsidising *investigations in progress* authorised by the Committee and carried on by workers selected by it. This grant does not remunerate discoveries *already made*, but proceeds upon the principle of payment for benefits *already received*, deserves close attention and has been recognised in other countries.

We think that both principles are sound. But they apply to two different classes of research, and are, indeed, complementary of each other. Payment for prospective benefits is "good business" only when some return is almost certain; and for this reason subsidised researches must frequently deal with simple and straightforward questions admitting of immediate experimental reply. But, as a matter of fact, most of the greatest medical discoveries were built upon a much more speculative and uncertain basis; and were achieved by men who neither sought nor received subsidies for those investigations—as, for instance, Küchenmeister, Jenner, Sims, Simpson, Lister, Koch, Laveran, Bancroft, Manson, Bruce, Mackenzie, and a score of others who have so greatly improved medical practice. Surely the State should encourage this class of investigation also—partly because it costs the State nothing in the doing, and partly because it seems to achieve the greatest results. And there is only one way to encourage it—by paying for discoveries when made. Payment for benefits received is always not only "good business," but also a moral obligation. There are at present hundreds of medical men and others in this country who possess the knowledge, the brains, and the opportunity for private independent discovery, without subsidies, but who do not attempt it because medical research work does not

pay even when brilliantly successful. Let these men also be brought into the fold of research by offering them reward when they succeed.

We therefore suggest that in addition to assisting investigations in progress it is proper for the State to remunerate those of its subjects who have already conferred the benefits of medical discovery upon it, just as it is proper for a patient to pay his doctor. And this policy will be not only an act of justice but an act of wisdom.

Our proposals are in detail :—

(1) That Parliament should resuscitate the precedent of Jenner by paying *compensation* when due for losses incurred in achieving medical discoveries.

(2) That Parliament should provide an annual sum, say of not less than £20,000, for life pensions to be given as rewards to such of His Majesty's subjects as have made worthy medical discoveries, such pensions amounting to between £500 and £1000 a year.

Such pensions would be preferable to donations in capital, and the sums suggested would be sufficient, because men of science seek only such independence as will enable them to employ their talents in the manner they think best.

The procedure of allotment should be similar to that used for the Nobel Prizes and for the honours and medals of learned societies—that is, full particulars of the work of all applicants should be kept and considered. Parliament grants large subsidies to soldiers and sailors, has appointed a commission to consider awards to inventors, and allows patents. It should not, therefore, complain if the medical profession, which has done so much for the nation during the war, now asks for some similar consideration.

(This Committee is concerned only with medical research, but recognises that similar awards should be given to workers in other fields.)

The Joint Committee.

The following are the members of the Joint Committee :—

Representing the B.M.A.—Sir T. Clifford Allbutt, K.C.B., F.R.S., Dr. R. T. Leiper, Professor Benjamin Moore, F.R.S., E. B. Turner, Esq., F.R.C.S., Professor J. S. Haldane, F.R.S.

Representing the B.S.G.—Lieutenant-General Sir Alfred Keogh, G.C.B., Colonel Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S., Professor W. Bayliss, F.R.S., Dr. D. Sommerville, Sir Richard Gregory, Lieutenant-Colonel O'Meara, C.M.G., late R.E.

THE PRODUCTION AND DISTRIBUTION OF MILK.[1]

IN April, 1917, a Committee was appointed, on the instruction of the Cabinet, by Lord Ernle, the President of the Board of Agriculture and Fisheries, with the concurrence of the Food Controller, the late Lord Rhondda, "to report on the production and distribution of milk, including the consideration of the steps which should be taken (1) to stimulate production; (2) to conserve milk-supplies during any period of excess ; (3) to provide for the special needs of children in urban centres ; (4) to effect economies in the cost of production and distribution ; (5) to organise supplies by administrative action, so as to reach all sections of the community; and (6) other kindred subjects." During the period of inquiry three interim reports have been issued dealing with questions of immediate urgency. These were published respectively in June and November, 1917, and November, 1918 (C.D. 8608, C.D. 8886, and C.D. 315).

The report before us, which is final, deals chiefly with matters affecting the milk industry and its development in the future, including both the period of post-war abnormal conditions, which we may safely and sadly predict will continue for some time, and the subsequent period when the effects of war will no longer operate. The report is signed by a strong personnel, with Viscount Astor as chairman, and the list of witnesses—representatives of the agricultural and dairy industries—interviewed by the Committee adds authority to the recommendations which have been drawn up.

Population in Relation to Producing Capacity.

One early and outstanding feature of the report is the fact that the production of milk in Great Britain in recent years has not kept pace with the increase in the human population nor with the demand of the latter for milk products. It will be agreed that an increase in the human population since 1871 of 60 per cent. against an increase in the number of cows and heifers of only 40 per cent., as compared with an increase in the weight of imported dairy products of 235 per cent., cannot be considered as satisfactory. The increased importation of condensed and dried milk is enormous, and the value of imported dairy products reached in 1914 no less a sum than £38,000,000. And yet the Committee reports that the countries exporting these products to our shores have no natural advantages of climate or soil which are not possessed to an even greater degree by large sections of the United Kingdom, which also offers to the British dairy-farmer the advantage of proximity of markets. In other words, the British dairy-farmer is found wanting. He has shown a lack of enterprise or intelligence, and has neglected the opportunities which this report brings to view—opportunities and advancement of the greatest importance to the well-being of the community. Let it be granted that no Government has done much to help him in his difficulties.

The Nutritive Value of Milk.

The Committee has previously put on record the well-considered opinion that the average consumption of milk in the United Kingdom is much lower than is desirable in the national interest. As is pointed out, milk contains all the nutritive constituents required by the body in a readily assimilable form, which makes it a valuable food for all classes of the community, and especially for children. For infants who are dependent on artificial feeding milk is obviously essential, and in the opinion of the Committee milk ought to be available in greater quantities than are at present obtainable. This serious conclusion means a milk shortage, which threatens the life and vitality of coming generations. The importance, besides, of the presence of growth-promoting substances in milk is well indicated in the report.

It is not surprising that the inquiry brought to light the unsatisfactory conditions of the milk industry in this country, while evidence is given showing that an increased consumption and production of better and cheaper milk are urgently needed. This, it is admitted, cannot be accomplished hurriedly, and only real progress can be made by such methods as will command sympathy and coöperation from both producers and consumers.

An Enlightened Milk Policy.

In the Committee's opinion the aims of an enlightened milk policy should be :—

(*a*) To bring about the utmost possible economy in production in order that: (i.) prices may be kept at as low a level as possible to the consumer, and consumption thus increased to the desired standard ; (ii.) an adequate supply may be brought within the reach of the poorest families.

(*b*) To improve the hygienic quality of milk and to ensure that the portion of the supply which requires or is subjected to pasteurisation is efficiently pasteurised under supervision.

(*c*) To increase the total supply in order to meet the extended consumption that should follow improved quality and the education of the public with regard to the nutritive properties of milk.

(*d*) To prevent the exploitation of the producer or the consumer by any trust or combination, either of a provincial, national, or international character.

In regard to pasteurisation, the Committee suggests that a definition of pasteurised milk should be set up, and that it should be sold as such and not as fresh milk. It regards pasteurised milk as by no means a substitute for clean milk production and cleanliness in handling milk.

Herd Management and Economy of Production.

There are interesting details in the report as to herd management and many other dairy-farming details, but we may note the remark that probably the greatest economy in the production of milk can be effected by increasing the yield of individual cows. It is pointed out that if the average yield per cow in the United Kingdom could be increased by one-tenth of a gallon per day the cost of milk at present prices would automatically fall about 2*d.* per gallon without affecting the profit made by the farmer. By paying stricter attention to the methods of feeding it is reckoned that an increased yield from 1½ to 2 gallons per cow could be effected, which would solve the problem of scarcity and materially bring down prices. Then comes the suggestion of official milk-recording centres being established, a scheme which, in the opinion of the Committee, has been by far the most effective agent in the improvement of dairy stock throughout the world. Sensible proposals are also made in regard to the selection of dairy bulls, the real test of which should be the power to beget offspring which will yield large quantities of rich milk.

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[1] Final Report of the Committee on the Production and Distribution of Milk (Cmd. 483). Price 1s. 6*d*. net. Printed and published by His Majesty's Stationery Office.

Conclusion.

Such are some of the salient features of the report, a study of which shows how thoroughly the Committee has gone into the great and manifold questions involved —questions, amongst many others, of improved transport facilities, preservation, and uncontaminated supplies. Agricultural developments apart, which deserve the serious consideration of the dairy industry with a view to increased production, the hygienic or scientific demands have received anxious attention, the Committee evidently having settled upon the need of adopting a policy which should lead to the ultimate provision of both a clean and an abundant supply of milk to the community.

CONTROL OF VENEREAL DISEASES.

The Anti-Venereal Campaign.

THE campaign against venereal disease so ably inaugurated by the National Council for Combating Venereal Diseases is in danger of losing in effectiveness from an internecine struggle with the Society for Prevention of Venereal Disease, of which it was the predecessor and in large measure the progenitor.

The position of the N.C.C.V.D.—In their memorandum of Nov. 10th the National Council made these among other statements :—

> 2. It is no part of our policy to conceal the truth, and we have always acknowledged the value of cleansing and disinfecting materials, applied early and thoroughly, in diminishing the risk of disease.
>
> 3. Abstention from exposure to infection is the only certain safeguard against the ordinary risk of disease; continence is to be encouraged by every means and on every ground, both social and hygienic.
>
> 4. No person who has indulged in promiscuous intercourse can be sure that he is not infected, and every such person is, therefore, bound in duty to him- (or her-) self and to society to seek means of cleansing at the earliest moment.
>
> 5. For this purpose a thorough local application of soap-and-water is of great value, followed (if possible) by the use of such disinfectants as may be recommended by a medical practitioner.

It is evident from these clauses that the National Council believe in the efficiency of immediate self-disinfection and advocate its application. The work of the Council, freely spent in the inculcation of chastity, needs no emphasis from us.

The position of the S.P.V.D.—The Venereal Prevention Committee, or, as it has now become, the Society for the Prevention of Venereal Disease, advocates the immediate application by the individual concerned of certain disinfectants, selected by a consensus of opinion on the part of the medical members of the society. In this respect the suggestion enunciated by the N.C.C.V.D. in Clause 5 of their memorandum is complied with. With regard to the attitude of the society to the question of morality, there is no colour for the suggestion which has been made that its members are indifferent to the importance of promulgating the value of chastity. Lord Willoughby de Broke, in his speech in the House of Lords on Dec. 10th, made it clear that the importance of chastity was realised by the society over which he presides. Because the immediate objective of the society is the direct prevention of disease, and because it takes the dictates of morality as read, this does not imply indifference or antagonism. At a recent meeting, held under the auspices of the Insurance Faculty, Miss Norah March enunciated the views of the society thus :—

> "In the meantime we must face the problem of the unchaste. Are they to be allowed to continue unaware or insufficiently appreciative of the possible consequences of unchastity? or are they to be impressed with the necessity —if they are determined on anti-social behaviour—for safeguarding themselves, in so far as it is humanly possible, in the interests of others, from the possible consequences of their action? Surely it is a matter of moral responsibility to take all possible precautions, and such education as the Society for Prevention of Venereal Disease proposes to put at the disposal of the public is intended *to throw onus upon the individual*, to make him responsible, if he does not conform to the social code, for limiting the evil results of his anti-social behaviour to the narrowest degree possible."

The society does not advocate free distribution of prophylactic packets or the indiscriminate urging of people to provide themselves with them. Its members, while recognising the value of chastity, realise also that many individuals will, in spite of all deterrents, indulge in promiscuous intercourse, and they regard it as their duty to the community to ensure that such individuals are acquainted with methods of reducing their chance of acquiring and conveying infection. The society would confer a greater gain on the community by laying more emphasis, in the instructions which they issue, upon the value it attaches to the practice of continence, and upon the undoubted fact that, while properly applied medicaments will in the majority of cases ensure safety, yet there can be no absolute guarantee.

The future of these two bodies.—It would be a national calamity if the effort associated with either of these bodies were to be eliminated. Should the National Council sink into abeyance, its valuable educational and propaganda work at home and abroad would be nullified. In view of the fundamental similarity of policy in the programmes of the N.C.C.V.D. and the S.P.V.D. there is nothing to preclude members of the one body from assuming or retaining membership of the other. By such a condition of dual membership a better understanding might be reached and unnecessary friction obviated. There is no logical reason against the dual allegiance, since, as we have seen, both bodies inculcate the need of immediate self-disinfection and both are alive to the importance of the practice of chastity. A conjoint crusade would be to the national gain. The National Council has the machinery, the experience, and the staff for organising and effectively carrying out educational measures. The Prevention Society appears the better adapted for stamping out disease by sanitary methods. By a sympathetic and broad-minded coöperation in principle and a wise division of specialised labour there is an opportunity of benefiting both the generation that is and those which are to come.

A Plea for an Experimental Early Treatment Centre for London.

Whilst controversy rages with regard to the respective merits of immediate disinfection and early treatment, hundreds of individuals are daily becoming infected in London alone. Insistence is laid by the advocates of early treatment upon the necessity which exists for individuals to seek assistance within a few hours after exposure to infection. In order that this advice may be put into practice it is necessary for an early treatment centre to be available during the whole of the 24 hours of the day. As far as we are aware no such accommodation exists. We strongly urge the necessity of at once instituting such a centre, and thus rectifying a position which is as illogical as it is callous. The advantages of an all day and night centre would be multiple.

> 1. It would undoubtedly prevent the development of much disease, especially amongst those (and they will long be with us) who for various reasons do not have recourse to immediate self-disinfection.
>
> 2. It would, after trial, give a substantial idea as to the necessity, quantitative and topographical, which exists for such centres.
>
> 3. Being admittedly of an experimental nature, improvements in technique and organisation which presented themselves could readily be adopted. After the attainment of a reasonable standard of perfection other clinics could then be founded and worked on similar lines.

The organising, equipping, and staffing of an experimental pioneer centre need occupy but a short time. If instructions were given to-day such a centre could be in full working order in two to three weeks. Knowledge of the existence and the situation of the centre could be promulgated by the same methods as are already utilised for making known the ordinary V.D. clinics. The number of cases attending these clinics are increasing rapidly, and we are justified in regarding the carrying out of the above suggestion as essentially an emergency measure. We commend it to the Ministry of Health and the medical department of the London County Council.

The Appointment of Medical Officers to Treatment Centres.

It was inevitable that, during the war, venereal clinics should be placed in charge of medical men who had but little experience in the diagnosis and treatment of venereal diseases. Now that the number of specially qualified practitioners has increased, it is necessary in the interests of the community at large for clinics to be placed in charge of those who have gained sufficient experience to justify their acceptance of such posts. Unless a high standard of efficiency is insisted upon treatment will be prolonged and its cost unnecessarily increased. No electoral body should appoint a medical officer to take charge of a clinic unless he produces evidence of adequate instruction in a recognised institution or has otherwise gained equivalent experience.

The Low Venereal Record in the American Expeditionary Forces.

Colonel Ashburn[1] of the United States Army states that the incidence of venereal disease in the American Expeditionary Forces varied for the greater part of the time, during which large numbers of American troops were present in France, between 62 and 31 per 1000, the average being about 45 cases per 1000 men annually. The rate rose rapidly as troops were being sent home, but this rise was partly fictitious, and the true rate at this time could not be determined. It was a remarkable fact that the corresponding incidence in the United States was always reported as higher than in France, averaging about 60 even after the armistice. In order to set an explanation of the low incidence rate of venereal disease in France a questionnaire was sent out to obtain information on the following subjects: (1) What is the percentage of chaste men among soldiers? (2) What is the average number of unprotected venereal contacts to each case of venereal disease? (3) What proportion of men have been exposed to venereal disease without using prophylaxis? More or less complete answers were obtained from 13,648 men located in four base sections, principally at Bordeaux, St. Nazaire, Brest, and Tours. It was found that 34 per cent., or about a third, had abstained from sexual intercourse while in France. Another third of all the men had indulged in intercourse so infrequently as to make their chance of acquiring disease quite small, so that relative continence was probably next in importance to real chastity in keeping down venereal disease. From a study of the replies and from collateral evidence Ashburn came to the conclusion that in France there were about 30 unprotected contacts with women of promiscuous sexual habits for each case of resulting venereal disease, while prophylaxis reduced the incidence to about one-third of what it was without prophylaxis. The much greater relative frequency of soft chancre in France, approximately two-fifths of all venereal disease, and the lesser relative frequency of gonorrhœa suggested that prophylaxis was less effective against chancroid than against gonorrhœa or syphilis. The contact rate among men on leave was very high. 50 to 70 per cent. of the venereal disease in the army came from leave areas, and from towns en route thereto. According to statements made by 614 men with venereal disease alcohol seems to have played a smaller part as a factor predisposing to venereal disease in the American Expeditionary Force than might have been supposed. Of the 614 only 215 admitted the use of alcohol before exposure, and 85 admitted intoxication.

A Post-graduate Course of Instruction.

A post-graduate course of instruction in the diagnosis and treatment of venereal disease is being arranged by Mr. K. M. Walker at St. Bartholomew's Hospital Clinic, Golden-lane, E.C., established by the Corporation of London. The first course will be confined to male practitioners, of whom 15 can be accommodated. The suggested dates are Thursday afternoons at 5.30 P.M. The beds attached to the clinic are available for the reception and study of suitable cases in addition to work in the out-patient department. Any medical practitioner wishing to attend is invited to send his name to the Medical Secretary, National Council for Combating Venereal Diseases, 81, Avenue Chambers, Southampton-row, London, W.C. 1. If more than 15 names are received a second course will be held as soon as possible after the termination of the first.

TUBERCULOSIS.

Tuberculosis in Birmingham.

THE report on tuberculosis in Birmingham in 1918 by the chief tuberculosis officer, Dr. G. B. Dixon, brings out many points of exceptional interest. In this year, 3254 cases of tuberculosis were notified, as compared with 3543 in 1917. The mortality for 1918 was 1385, and as somewhat similar figures have been returned for earlier years, the calculation is made that the actual mortality among the cases notified is about 42 per cent. In other words, about 58 per cent. of the persons notified recover. In Birmingham there are more than 16,000 cases of the disease at any one time, the cost of which to the city is at least one million a year. There is, therefore, every justification for the expenses incurred in stamping out the disease, all the more as there are many indications that its incidence is being reduced. As judged by notifications, the report shows a definite decline of the incidence of pulmonary tuberculosis. The war has, however, increased the mortality among the persons already suffering from tuberculosis. A comparison with the notifications in five other large towns shows that, with 248 notifications per 100 deaths, Birmingham comes first, the ratio of notifications to 100 deaths being as low as 167 in Manchester, and 176 in Leeds. A table showing the incidence of, and mortality from, tuberculosis at various ages brings out the curious fact that whereas the incidence and mortality are about equal in the two sexes up to the age of 15, at every age-period over 15 the incidence and mortality are much higher in the male—often more than twice as high. Those who maintain that bad housing is the most important factor in producing tuberculosis will be surprised to find that in 1918, as in previous years, the incidence of the disease among males aged 35 to 45 was 7·69 per 1000 living at these ages, as compared with 3·33 per 1000 females of the same age. Again, the mortality rates at these ages for males was 4·46, as compared with only 1·55 per 1000 for females. Yet women at these ages spend far more of their time in the dwelling-house than do the men. The report includes an account by Mr. J. Malcolm, M.R.C.V.S., of tuberculosis with reference to the milk-supply.

Borough of Poplar Dispensary.

The report of this dispensary, which was founded as a memorial to King Edward VII., is for the years 1917–18. Many pages are devoted to tables showing the amount and nature of the work done. The scope of this work is ever widening and bringing the dispensary into some new official relationship or other. But the lack of suitable institutional accommodation for advanced cases of pulmonary tuberculosis is deplored, and the fact that such cases are still dependent on the Poor-law infirmary is recognised as a grave flaw in the antituberculosis campaign.

Sanatorium Benefit in Ayr.

In the report for 1918, the Insurance Committee for Ayr reviews the results of institutional and domiciliary treatment since July, 1912. The total number of applications made for sanatorium benefit was 1375. Of these cases, 887 received treatment, and of these again, 289, or 32·58 per cent., terminated fatally. Many of the 163 patients who could not be traced were also probably dead. The calculation is then made that about 41 per cent. of the patients treated since July, 1912, were dead. Another series of investigations into the subsequent histories of patients who had undergone treatment showed that of 200 patients who were in different states of health after treatment in 1915, as large a proportion as 29·5 per cent. were dead by the end of 1918. With regard to the 52 discharged soldiers who had completed their treatment, about 46 per cent. were already dead.

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[1] Journal of the American Medical Association, Dec. 13th, 1919.

Sanatorium Benefit in Wigan.

In the report for 1918, the tuberculosis officer for the county borough of Wigan, Dr. G. Jessel, analyses the results of sanatorium benefit since July, 1912. Of the 568 applicants for benefit, 491 were actually suffering from pulmonary tuberculosis, and of these again 184 were alive at the end of 1918. The number of patients who could not be traced was 90. Of the 184 who were traced 84 were fit for work, 46 were fit for light work, and 54 were unfit for any work. Thus about 71 per cent. were fully or partly restored to working capacity. On the other hand, 217 were dead.

List of Sanatoriums Approved by the Ministry of Health.

The Ministry of Health, in a circular dated Nov. 29th, 1919, has drawn attention to a list that has recently been drawn up of the sanatoriums and other residential institutions approved by the Ministry under the National Insurance Act, 1911, for the treatment of persons suffering from tuberculosis and resident in England and Wales. The names of the administrative counties and county boroughs in which these institutions are situated are given, as well as the date on which the approval expires in each case. This list, price 3*d.*, can be obtained from H.M. Stationery Office. The Ministry's circular also reminds local authorities that no fee is payable in respect of the notification of cases of tuberculosis under the Public Health (Tuberculosis) Regulations, 1912, by the medical officer of a sanatorium, as defined in Article 1 (1) of the Regulations.

Milk and Tuberculosis.

The Committee on the Production and Distribution of Milk accepts the findings of the Royal Commission on Tuberculosis to the effect that :—

> "Primary abdominal tuberculosis in man, as well as tuberculosis of the cervical glands, is commonly due to ingestion of tuberculous infective material. A considerable amount of tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type transmitted to children in meals consisting largely of the milk of the cow."

The Committee is aware that subsequent work has confirmed this. At the same time it does not desire to create unnecessary alarm by exaggerating the extent of human tuberculosis due to bovine infection, for it realises :—

1. That much infantile debility leading to susceptibility to many diseases including tuberculosis is due to inadequate milk consumption.
2. That many children must be drinking some tuberculous milk without suffering evil effects.
3. That all reacting cows do not necessarily give tuberculous milk.
4. That the risk from tuberculous milk may be practically removed by efficient pasteurisation.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

June 30th, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	37	0·10	0·84	2·30	1·48	1·48	6·20	0·65	0·63	0·03
Embankment Gardens... ...	32	0·18	4·20	10·91	2·25	3·31	20·84	1·93	0·67	0·15
Finsbury Park..	31	0·04	0·70	3·05	0·72	1·22	5·73	1·04	0·24	0·04
Ravenscourt Pk.	39	0·26	7·00	29·85	2·61	4·93	44·65	2·10	1·32	0·44
Southwark Park	40	Nil	0·12	0·20	1·49	2·03	3·84	1·45	0·34	0·09
Golden Lane ...	33	0·03	1·86	2·89	0·93	2·25	7·96	1·19	0·64	0·25
Malvern...	23	Tr.	0·07	0·30	0·30	0·95	1·63	0·41	0·10	0·01
Southport—										
Hesketh Park...	33	0·02	0·44	0·93	0·94	3·76	6·09	1·15	0·64	0·06
Woodvale Moss	35	—	—	—	—	—	5·33	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park	112	0·07	1·38	3·84	2·01	5·28	12·58	2·94	0·71	0·24
Bellahouston Pk.	97	0·24	2·08	2·85	1·24	5·42	11·83	2·56	0·25	0·18
Blythswood Sq.	114	0·12	1·55	4·89	4·87	4·64	16·07	2·42	0·48	0·27
Botanic Gdns....	119	0·04	0·78	2·51	2·85	7·09	13·27	3·21	0·31	0·16
Richmond Park	105	0·04	1·44	4·10	0·31	7·06	12·95	2·90	0·29	0·26
Ruchill Park ...	116	0·02	1·64	3·51	2·73	5·31	13·21	2·07	0·32	0·14
South Side Park	112	0·04	1·55	2·33	1·72	5·64	11·28	2·91	0·27	0·19
Tollcross Park..	103	0·03	1·71	4·01	2·03	6·20	13·98	2·14	0·40	0·25
Victoria Park ...	121	0·08	0·77	2·56	4·27	7·36	14·99	4·96	0·29	0·28

July 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	76	0·08	1·29	1·95	3·34	0·30	6·96	0·91	0·40	0·07
Embankment Gardens	51	0·13	2·31	7·41	2·79	4·44	17·08	2·94	0·62	0·12
Finsbury Park ...	48	0·14	2·22	9·44	0·77	3·15	15·73	1·60	0·35	0·08
Ravenscourt Park	56	0·03	0·56	1·79	2·39	2·76	7·53	1·59	0·38	0·08
Southwark Park	58	0·04	2·36	3·89	4·08	5·80	16·17	4·82	0·99	0·40
Victoria Park ...	46	Nil	0·19	0·78	0·69	2·32	3·97	1·57	0·37	0·21
Wandsworth Com.	34	0·07	1·36	0·79	1·35	2·88	6·45	1·63	0·49	0·09
Golden Lane ...	56	0·06	2·53	4·51	1·80	3·15	12·05	1·88	0·61	0·32
Malvern	74	Tr.	0·23	0·23	0·85	1·72	3·03	0·77	0·15	0·02
St. Helens...	23	0·05	0·08	3·46	1·18	2·65	7·42	1·05	0·50	0·01
Southport—										
Hesketh Park ...	36	0·01	0·18	0·58	0·79	2·35	3·91	0·94	0·20	0·04
Woodvale Moss...	32	—	—	—	—	—	3·55	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	13	0·05	0·79	4·39	0·72	1·27	7·22	0·61	0·33	0·03
Bellahouston Pk.	16	0·04	1·40	3·01	0·48	1·57	6·50	0·87	0·10	0·06
Botanic Gdns. ...	20	0·09	1·60	3·97	0·93	2·27	8·86	1·28	0·19	Nil
Richmond Park...	16	0·08	1·99	4·11	0·75	2·12	9·05	0·92	0·63	0·08
Ruchill Park ...	25	0·06	1·08	4·13	0·67	1·48	7·42	1·12	0·11	0·07
South Side Park...	19	0·04	0·09	4·64	0·81	1·83	7·41	0·10	0·11	Nil
Tollcross Park ...	15	0·08	2·66	3·46	0·61	2·16	8·97	1·08	0·10	Tr.
Victoria Park ...	23	0·04	1·32	3·40	0·65	2·14	7·55	1·30	0·10	0·08

There were no returns during the month of June from the following stations: Victoria Park and Wandsworth Common (London); Manchester; Newcastle-on-Tyne; Rochdale; St. Helens. Lead was reported present in the deposit of all the Glasgow samples, and vegetable matter in the gauge at Bellahouston Park (Glasgow).

During July there were no returns from the following stations: Manchester (two stations); Newcastle-on-Tyne; Rochdale. At Blythswood Square (Glasgow) the volume of the sample was insufficient for complete analysis. The insoluble matter in the majority of the Glasgow deposits contained lead, and in the gauge at the Botanic Gardens of that city there was vegetable matter.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall. Tr. = Trace.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Registrar-General's Report.

THE report of the Registrar-General for Ireland for 1918 was issued last week. In some particulars the report is encouraging. The marriage-rate—5·15 marriages for 1000 of the population—is 0·34 above that for 1917, but 0·05 under the average for the ten years 1908–17. The birth-rate—19·9 per 1000—is 0·2 per 1000 above that for 1917, but 2·5 under that for the ten years 1908–17. The death-rate—18 per 1000—is 1·4 per 1000 above that for 1917, and 1·1 above that for the ten years 1908–17. The outstanding feature of the mortality statistics is the excessive mortality due to influenza and pneumonia. Deaths from influenza numbered 10,651 as against the average for ten years of 1234, and from pneumonia 6120 as against an average of 4067. The mortality from tuberculosis showed a slight fall. The rate was 2·19 per 1000, being 0·05 under the average for the previous ten years. The infant mortality was also less—86 per 1000 as against an average of 91.

The Dublin (83) General Hospital.

The members of the units which staffed the Dublin (83) General Hospital at Boulogne in 1917 and 1918 have held recently the first of what it is hoped to make a series of annual dinners, under the chairmanship of the organiser of the hospital, Colonel William Taylor, C.B. Of the 29 officers who served in the Dublin units one, Dr. Charles M. Benson, died early in 1919 of influenza. Twenty-three of the others attended the dinner, and renewed memories of a happy comradeship in France.

The Queen's University of Belfast.

The Vice-Chancellor's report for the session 1918–19 has just been published. There were 888 students enrolled—610 men and 278 women. 549 students (418 men and 131 women) were enrolled in the Faculty of Medicine—in other words, there were 210 more medical students than the combined number of students in all the other faculties. These figures demonstrate that the Queen's University of Belfast is largely becoming a medical university. Colonel T. Sinclair, C.B. (professor of surgery) was appointed registrar of the University and Representative on the General Medical Council.

Epidemic Disease in Belfast.

Belfast is still suffering from a widespread incidence of scarlatina, measles, mumps, and chicken-pox, exceeding in numbers all previous experience. Some attribute this unfortunate state of affairs to the crowded condition of the city, where in the working-class districts houses are so scarce that often two families reside in the ordinary accommodation for single families; while others believe the outbreaks to be due to the prolonged drought in summer and early autumn.

Jan. 6th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

The War Work of the Indian Medical Service.

SINCE August, 1914, just short of 400 civil I.M.S. officers have been handed over to military authorities. During the war 71 were reverted from time to time, and since the termination of hostilities other reversions have taken place to fill essential billets on the civil side. But while the number of I.M.S. officers on the civil side before the outbreak of the war was over 500, there are now less than 200 on the civil cadre. Many of these, moreover, have been continuously at work for seven or eight years, and for the last five have been doing double work. The whole resources of the civil side of the service have been placed unreservedly at the disposal of the military authorities. The officers thus transferred from civil to military have supplied the nucleus round which the Indian Army has been able to build up an adequate corps of medical personnel. The trained war reserve thus constituted made it possible to maintain the medical services even when the Indian Army was so largely increased. Each regular I.M.S. officer has been practically a training centre for two or three temporary Indian I.M.S. officers who joined up during hostilities. The Indian Medical Service has gained one V.C., 59 M.C.'s, 46 D.S.O.'s, 8 C.B.'s, 23 C.M.G.'s, 41 C.I.E.'s, and 41 Orders of the British Empire of various grades. 533 I.M.S. officers have been mentioned in dispatches, 24 have gained foreign decorations, and 60 have been mentioned in the *Gazette of India* for services rendered in connexion with the war. The work of the I.M.S., both on the military and civil side, has been worthy of its highest traditions, and constitutes a record which any service in the Empire might well envy.

Instruction in Elementary Hygiene.

The efficient teaching of elementary hygiene in Indian schools would undoubtedly prove of great value to the community. It has been argued that a serious difficulty in the way of including hygiene in the curriculum is the apathy or inefficiency of the teaching staff. This argument may be pushed too far, just as the complete indifference of the people at large to measures for the prevention of disease has been exaggerated. A specific instance of what teachers may do to help the medical authorities is forthcoming in the notes on vaccination in the Central Provinces for 1918–19 by the Sanitary Commissioner, who remarks that it is a regrettable fact that although vaccination is a certain preventive of a deadly disease municipal committees are often so absorbed with petty affairs that they shut their eyes to the matter. In another part of the notes referring to the revaccination work done by the dispensary medical officers the Commissioner observes that "these medical officers brought to light many unvaccinated children, who were subsequently vaccinated with the help of the schoolmasters, most of whom render great help nowadays in the cause of vaccination." If the rising generation were properly instructed in health matters the municipal committees would in time be compelled to devote more attention to the prevention of disease.

Tuberculosis in Bombay.

The attention of the municipal corporation has been called by the executive health officer to the need for providing adequate hospital accommodation for tuberculous cases, including phthisis, among the poorer classes. The health officer estimates the number of attacks annually at 10,000, which is about five times the number of deaths from the disease. He points out that at any given time not less than 5000 are ill with tuberculous disease in Bombay, and proposes hospital accommodation with 200 beds for advanced cases.

Shillong Pasteur Institute.

The second annual report of the Shillong Pasteur Institute for the year ending December, 1918, has just been issued, and shows that 1068 patients underwent the complete course of treatment; of these, 90 were Europeans (including 7 Anglo-Indians) and 978 were Indians.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY. —A meeting was held at the Royal Devon and Exeter Hospital on Dec. 18th, 1919, the President, Dr. Ransom Pickard, in the chair. Mr. A. L. Candler read a paper on the Diagnosis and Treatment of Liver Abscess, based on cases personally met with on the Salonika and Mesopotamia fronts and during the recent operations on the North-Western Frontier of India. In the discussion which followed Dr. L. P. Black referred to cases under his care during the Gallipoli campaign of 1915. Dr. S. Steele-Perkins mentioned a case where persistent crepitations at the base of the right lung gave way to emetine injections. Dr. W. Gordon recounted three cases coming under his observation in which difficulties of diagnosis had arisen. In reply to several questions Mr. Candler urged the importance of an epigastric incision in cases where symptoms still pointed to an abscess in spite of a negative puncture.

Correspondence.

"Audi alteram partem."

THE JUSTIFIABILITY OF THERAPEUTIC LYING.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 27th, 1919, Dr. C. S. Myers, in the course of a violent denunciation of the treatment I adopted in the case of the patient with hysterical sleeping attacks (THE LANCET, Dec. 20th, 1919) uses strong language. Let me assure him that the principles of this treatment of 18 months ago differ in no way from those to which I would have consented in the case of similar illness in a member of my own family. Such a consideration, to my mind, will always be a reliable guide to any medical man who may have occasion to assess the motives which underlie his professional conduct. Further, I showed my patient and narrated the whole story of his illness to a medical gathering presided over by the President of the Royal College of Physicians of London. My considered opinion was, and is, that I did right in advising the patient to submit to the treatment, and I should like to express my appreciation of the support I received from the large body of my colleagues in circumstances which gave to their loyalty a special value.

Dr. Myers reiterates the word "needless" in referring to my procedure, yet he does not so much as outline his alternative treatment. The fear of failure of the remaining method of treatment known to the doctor (after consultation) should not weigh with him so long as there is a remote chance that it will benefit his patient, and, in my opinion, the risks to himself which the doctor may think likely to follow failure of a particular form of treatment are unworthy of any but passing consideration, provided that the requirement which I have mentioned is fulfilled. Risks have to be faced, and in this case the patient's future was at stake. He said that in the past he had been punished repeatedly for a disability over which he appeared to have no control, and it was in the hospital asylum, to which he had been sent with an erroneous diagnosis, that I found him. Deception in one of its many guises will probably continue to be used by some doctors for some cases as long as treatment of disease lasts, although it is a commonplace that the number of hysterical symptoms which appear to demand deception for their relief is every year becoming smaller. Frequently when an appeal to his reason has failed to cure a patient he has thanked me for giving him the chance of cure by an appeal to his imagination. He prefers a cure, however produced, to the alternative of discharge with his symptoms unrelieved.

When I decided to publish my paper I anticipated criticism and looked forward to it. The value of fair constructive criticism is beyond price, but I question the courtesy, to say the least, of the medical man who in the course of his criticism publicly asserts that in his opinion a fellow practitioner has adopted a procedure unworthy of his profession in the treatment of a patient.

Will you allow me to draw attention to a small mistake in my paper? On the last page "December, 1919" should read "December, *1918*."

I am, Sir, yours faithfully,

Harley-street, W., Jan. 3rd, 1920. HILDRED CARLILL.

THE DRAFT REGULATIONS FOR 1920.

To the Editor of THE LANCET.

SIR,—As Dr. H. B. Brackenbury, in his comments on my letter on this subject, says that almost every sentence which purports to be a statement of fact is either false or misleading, I must ask you for space for a reply. A conference that gives its approval to regulations which declare the decisions of the Minister to be final, that objects to an appeal to a court of law, that connives at the fact that the Minister may be both accuser and judge, that rejects clear-cut motions such as those from Stockport, Portsmouth, and Cheshire, and passes the as-you-were motion from Brighton, proclaims the Minister autocrat in the strictest sense of the term. "Speaking generally, what is resented more than anything else in the new regulations," says the *British Medical Journal*, "is the autocratic element which permeates them." Over and over again at the conferences objection was raised to the limitation of lists as curtailing the liberty of the medical man, interfering with his practice, and abrogating a first principle—free choice of doctor. Two years ago 70 areas voted for no limitations, as against 33 in favour of them. Yet the Bournemouth resolution to limit lists to 3000 was passed, although the chairman informed us that he had ruled out of order motions contrary to the decisions of the July conference. A further limitation to 2000 is a logical deduction.

I said a resolution to organise the profession to refuse service under certain contingencies was dropped as unthinkable. The minutes record that an amendment from York, "and instructs the Insurance Acts Committee to endeavour by all means to secure the refusal of all insurance practitioners to take service at any less sum" was lost. The reason given at the conference was that refusal was unthinkable; so to this day the Minister cannot make up his mind about the fee. If an insurance practitioner is responsible for all persons who have been accepted by him, for those who have left him and are perhaps out of benefit, but who have not been notified to him by the Committee as having ceased to be on his list, and for all accidents and emergencies pending their acceptance by somebody else, I say that he is at the beck and call, night and day, of anyone who can bluff him for treatment.

A practitioner shall not employ a permanent assistant to attend his insured patients without the previous consent of the Committee to the employment of such an assistant. The Committee is requested to be reasonable. Before consenting to the employment by a practitioner of more than one assistant the Committee shall obtain the approval of the Minister. In spite of these regulations the practitioner is after all responsible for all acts and omissions of any practitioner acting as his deputy or assistant. It is an old shibboleth that State money means State control. But in this case we have State control without State money.

I said that the patients whom a doctor attracts are not his but belong to the State. If the Minister confiscate Dr. Brackenbury's watch it belongs to the Minister as there is no appeal. The *British Medical Journal* has not minced words: "The Ministry of Health has stated its determination to alter the present regulations about transfers. Practitioners, for their part, are equally determined not to submit to any confiscation of the goodwill in their panel practices."

A pension scheme was literally sprung upon us a day or two before the conference. It was a red herring drawn across the trail. It was a daring move on the part of those who are out for a State service. It was resolved: "That this conference is in favour of a pension scheme for insurance practitioners to be managed by the practitioners themselves, and authorises the Insurance Acts Committee to negotiate with the Government concerning such a scheme." Resolved also: "That the question of a pension scheme for insurance practitioners be referred to local Medical and Panel Committees."

At the conference three names were added to the Association's nominees to form a deputation to the Minister. They had to inform him definitely that 13*s*. 6*d*. was the irreducible minimum that the profession would accept as a capitation fee. The interview with the Minister is published in the *British Medical Journal* of Dec. 13th. The usual arguments for better payment were advanced. That money had depreciated during the war, that the cost of living had increased, that more work meant more pay, that greater responsibility entailed greater consideration were theories new to him. His stereotyped reply reads: "That he could not see any case made out for any increased rate of remuneration."

The Ministry has taken the measure of our conference delegates. Our motions, whether passed or rejected, are entirely ignored at the Ministry. Since our conference the following most objectionable regulations were inserted in the latest draft regulations:—

> "Range of practitioners' duties. (13) A practitioner is required (*a*) to furnish in writing to the medical officer any information which the latter may require with regard to the case of any patient to whom the practitioner has issued or declined to issue a medical certificate of incapacity for work; (*b*) to meet the medical officer, when the latter so requires, for the purpose of examining, in consultation, any patient in respect of whom the practitioner has sought the advice of the medical officer; (*c*) to afford to the medical officer, or to such other person as he may appoint for the purpose, access at all reasonable times to any records kept by the practitioner under these terms of service, and to furnish the medical officer with any such records, or with any necessary information with regard to any entry therein, as he may require; and (*d*) to answer any inquiries of the medical officer with regard to any prescription issued by the practitioner, or to any statement made in any report furnished by him under these terms of service."

Is it possible to consider insurance practice reputable after this? Fortune may render us unhappy; it is only ourselves that can make us despicable.

We were once medical practitioners. We were members of a learned profession. Now by the terms of our service we are insurance practitioners. We have, in the Commissioners' own words, to safeguard the interests of the approved societies. We are agents in a business undertaking. For heaven's sake, then, let us learn business methods.

I am, Sir, yours faithfully,

Exeter, Jan. 3rd, 1920. J. PEREIRA GRAY.

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—The statements made and the statistics quoted by Lord Sandhurst in the debate raised by Lord Willoughby de Broke in the House of Lords on Dec. 10th, and published in THE LANCET of Dec. 20th, 1919, are excessively misleading. It is possible or probable that Lord Sandhurst did not grasp the purport of Lord Willoughby de Broke's inquiry. The "Portsmouth area" to which Lord Willoughby de Broke alluded is that controlled by the Assistant Director Medical Services at Portsmouth. This officer had taken great care that sanitation, including sanitation with respect to venereal disease, should be taught to the troops in his charge. Lord Willoughby de Broke desired information as to the results of this teaching, but Lord Sandhurst supplied him with something quite different.

Within the area, during the period covered by the question and answer, were stationed American, Colonial, and R.F.C. units with which the A.D.M.S. had nothing to do. Moreover, there came into the area, to take up station, or on passage through it, drafts and whole units from elsewhere (e.g., other British areas and France) among whom were many men who had become infected before coming into the area and who developed disease after arrival. Lord Sandhurst—unknowingly, no doubt—apparently added together all the disease in the Portsmouth district, no matter by whom, or when, or where contracted, and gave the sum as an answer to Lord Willoughby de Broke. In actual fact, so far from "the Portsmouth area" being 2½ times worse than the average for the United Kingdom, it is probably the model area not only for the United Kingdom, but for the whole world, and not only for British troops but for all troops. Indeed, I think it will be found that, quite apart from American, Colonial, and R.F.C. units and from whole units arriving from elsewhere, the mere drafts joining station from other British areas supplied more disease than the whole resident military population. When the smallness of these drafts as compared with the resident population is taken into account the relative superiority of the Portsmouth area may be grasped. An instance drawn from actual fact will illustrate my meaning. A certain medical officer had seven cases of venereal disease among 2000 troops in two years and four months. One day 200 men arrived from the continent, and among them the first morning's parade revealed 21 cases of venereal disease. The M.O. was proud of his results, and credited himself with a disease-rate of 1·5 per 1000 per annum. But Lord Sandhurst's statistician would have credited him with a venereal-rate of $\frac{21 \times 365}{2} =$ 3832·5 per 1000 per annum.

Lord Sandhurst stated that in two hospitals about 12 per cent. of the venereal patients stated that they had disinfected themselves quickly. I can give him additional information. In a third hospital numbers of men stated that they had disinfected themselves immediately. But closer questioning revealed that none of them had done so. The first answer was caused by a fear of blame. 495 of Surgeon Commander Boyden's sailors disinfected themselves immediately, and not one took disease. The M.O. mentioned above, who had 2000 troops in charge, taught quick disinfection, and not one of his men who employed it contracted disease during the whole two years and four months.

Suppose two surgeons, each operating on hundreds of cases, and employing the same antiseptic methods, achieved widely different results—the one getting absolute immunity and the other many cases of infection. To what should we attribute the difference? I think every medical man would say the method was good, the patients not to blame, and the unsuccessful surgeon altogether to blame. Lord Sandhurst's statistician, calculating wholly from the results of the unsuccessful surgeon, would put the blame mainly on method. However, Lord Sandhurst states: "This showed that to be effective instructions as to use of disinfectants must be given much more clearly and insistently than had been the case in the army." Here we have the gist of the matter. But instructions are usually given clearly and insistently only by those who desire their success.

I am, Sir, your faithfully,

Southsea, Jan. 4th, 1920. G. ARCHDALL REID.

THE SERUM DIAGNOSIS OF SYPHILIS.

To the Editor of THE LANCET.

SIR,—I should like to congratulate Mr. D. C. Lewis on his lucid article on the Serum Diagnosis of Syphilis in THE LANCET of Jan. 3rd. The standardisation of the corpuscle suspension used in complement-fixation tests has always appeared to me to be of prime importance, and it is a matter for wonder that the Medical Research Committee in the pamphlet on standardisation of the Wassermann reaction does not so much as attempt a standardisation of what, after all, is the basal unit from which all other reagents are calculated. It is to be hoped, therefore, that Mr. Lewis's method or some modification of it will be generally adopted. The only criticism one can offer is that it adds to the laboriousness of an already somewhat cumbersome technique. This objection cannot, of course, stand in face of the obvious advantages. It only leads one to hope for some simpler method, and I should like to ask Mr. Lewis whether he has attempted to standardise by counting the red cells by means of a Thoma-Zeiss apparatus. It appears to me that this would involve less labour and could be done at room temperature. I have done very little work on this method as yet, but it does seem that, in this way, uniform suspensions of corpuscles can be obtained irrespective of the speed of the centrifuge, &c. Furthermore, as bearing out Mr. Lewis's statements, it is surprising what differences can be got in the number of corpuscles per c.cm. in so-called "3 per cent. suspensions" made up on different occasions. Controlling the rate and time of centrifugalisation does not seem to be a practical proposition, and some such method as Mr. Lewis's is imperative if any great degree of uniformity of results is to be obtained.—I am, Sir, yours faithfully,

C. FLETCHER.

Laboratories of Pathology and Public Health,
Harley-street, W., Jan. 5th, 1920.

THE INSTABILITY OF ROUS-TURNER BLOOD SUSPENSIONS.

To the Editor of THE LANCET.

SIR,—We beg your permission to reply, as briefly as possible, to the letter in your issue of Dec. 13th, 1919, by Dr. Peyton Rous, who, we trust, will find no discourtesy in the condensation of our answer.

1. Our criticism was directed almost entirely against Professor J. S. C. Douglas and Dr. J. W. Bigger for the use they made of the suspensions, and in no way against Drs. Rous and J. R. Turner's main findings.

2. "Our conclusions are misstated," alleges Dr. Rous. But we wrote that Rous and Turner claimed no *noteworthy* change in the emulsions for three or four weeks. We did not say no change at all. By "noteworthy" we implied such changes as would render the emulsions unfit for accurate serological tests.

3. We drew the deduction from our saponin experiments that the emulsions undergo a progressive change of sensitiveness to serum hæmolysis. Dr. Rous considers this conclusion unjustifiable, and quotes the following authors in his support.

Professor H. G. Wells, in the chapter of his text-book which deals with the action of various hæmolysins, has collected a quantity of experimental evidence which shows that different hæmolysins may have different modes of action. We do not deny this; but we hold that text-book summaries should be used with much caution in criticism of detailed scientific observations. For text-books are never free from erroneous statements, nor is Professor Wells's book an exception—e.g., it is stated that saponin solutions are heat-resistant; whereas we have found that saline solutions of saponin are quickly weakened at 70° C., more slowly at lower temperatures, and even deteriorate spontaneously in a few days at room temperature.

McNiel's paper shows that jaundice may increase the resistance of red cells to hypotonic solutions, while diminishing their resistance to saponin.

Rywosch's work was with the blood of a variety of animals, some of which he showed to be highly sensitive to saponin but strongly resistant to hypotonicity, and vice versâ.

None of these data have any direct bearing upon our experiments and deduction. For we were concerned only with the actual changes taking place in a single blood emulsion, and we had no concern with different bloods nor even different emulsions of the same blood. Dr. Rous's quotations clearly do not prove that cells which increase in sensitiveness to saponin do not also change in sensitiveness to serum hæmolysin. There remains only Rous and Turner's statement that a skilled worker had found the preserved cells to be as serviceable for the Wassermann reaction as fresh cells. Dr. Rous tells us that this statement has been confirmed "in its essentials" by Reimann. Unfortunately, neither in Oxford nor from London's largest medical library have we been able to procure the journal containing his paper, and we are therefore at present not in a position to make any critical comments on this work. In any case, the Wassermann reaction is a relatively coarse and not truly quantitative test in which indeterminate variations in sensitiveness of the emulsions are constantly present. It is not capable therefore of deciding the point at issue.

4. The following facts seem to us to be quite clear and directly applicable to the matter in hand.

(*a*) Drs. Rous and Turner state that the emulsions undergo an increase in mechanical fragility during the period of preservation.

(*b*) We have demonstrated a progressive increase in sensitiveness to saponin.

(*c*) Dr. Bigger[1] has produced evidence of a similar increase towards serum hæmolysin (the actual point at issue). In the face of these findings we cannot admit that our deduction was in any way unreasonable. Upon those who deny its truth lies the burden of proof, that cells which undergo marked changes in sensitiveness to these various agencies none the less remain stable to serum hæmolysin in contradiction to Dr. Bigger's own subsequent findings. We adopted the best method we could devise for our experiments, in which the use of an absolutely stable substance—e.g., dry saponin—was essential. It is not at present possible to carry out a similar research with serum hæmolysin on account of its instability. If it had been possible we should have done it.

5. We did not use gelatin because its employment would have rendered our results incomparable with those of Douglas and Bigger, who did not make use of it.

6. Dr. Rous applies the phrase "an unusual lapse in accuracy for figures" to an observation of a purely qualitative nature which we chanced to make after our quantitative experiments had been concluded. The change in the red cells had by then reached such a pitch as to reveal itself at once even to casual inspection.

In conclusion, we trust that, even if we have failed to convince Dr. Rous himself that our saponin curves have (as we believe) a direct and fundamental bearing on the question of the stability of his emulsions, they may nevertheless prove of interest and assistance to those who are working on the lines of serological standardisation.

We are, Sir, yours faithfully,

G. DREYER.
A. D. GARDNER.

Department of Pathology, University of Oxford,
Jan 5th, 1920.

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[1] Jour. of Path. and Bact., May, 1919.

SUBCUTANEOUS EMPHYSEMA IN PARTURITION.

To the Editor of THE LANCET.

SIR,—Four nights ago I was called to a primipara. 20 years of age, who looked a healthy, well-developed woman, but had a small pelvis and a big child with the cord round its neck. Labour much prolonged, head three hours down on perineum, and pains decreasing in strength and frequency. Patient was lying on her left side; face, pushed down into the bed, was seen on raising to be much swollen on the right side, eye closed, bridge of nose broadened, swelling extending down side of face and neck. Patient complained of sore-throat (about thyroid) and difficulty in breathing. Was delivered with forceps. The following day her face was uniformly puffed up owing to change of posture; neck distended, and swelling extending down over thorax, giving everywhere the crackling sound and sensation of dry paper. There is now slight cough, but the swelling and sore-throat are subsiding. Examination by the stethoscope is unsatisfactory because of the subcutaneous crackling.

I send this as neither I nor two experienced practitioners of whom I inquired had met with this complication, nor do I find any reference to it in my midwifery text-books (save Galabin's)—Playfair, Jellett, and Eden; but Marcus Beck mentions it in Quain's Dictionary of Medicine upon the authority of Dr. Walshe, and I think it a matter of sufficient importance to the student to warrant its being dwelt upon by his lecturer in obstetrics. Besides, it may be of more frequent occurrence than I am aware.

I am, Sir, yours faithfully,

Kettering, Jan. 2nd, 1920. J. GOOD.

THE RIGHT USE OF THE COIN-CATCHER.

To the Editor of THE LANCET.

SIR,—In view of recent articles in THE LANCET advocating the use of the œsophagoscope and deprecating the use of the coin-catcher, I would like to point out that the coin-catcher used in conjunction and with the help of the X rays is not only a simple but also a harmless and efficacious instrument. During the ten months in 1918 when I was house surgeon to the Ear Nose, and Throat Department of the London Hospita I on seven occasions removed coins or circular pieces o tin from the throats of small children who had swallowed them. These foreign bodies were always lodged at the same spot—i.e., at the level of the suprasternal notch The children were generally aged from 3 years to 6 years, and the coins had been swallowed, as far a one could ascertain from their mothers, from one day to seven days prior to admission to hospital. Unde a light A.C.E. anæsthesia in the X ray room the whole procedure of introducing the coin-catcher and extracting the offending foreign body was easily and rapidly carried out. In no instance did the operation take more than three minutes, and always within 15 minutes from the time of leaving the children were back again in bed in the ward. They were kept in one night for observation and discharged the following day with no untoward symptoms supervening. To my mind this is an ideal way of dealing with these emergencies. The whole field of operation from start to finish is under visual control, thanks to the aid of the screen; if the coin-catcher is "hung up" on trying to extract the coin any temporary hitch is easily overcome by introducing it further down the œsophagus and then gently withdrawing it, and as long as care and gentleness are used no danger should be feared. On the other hand, the use of the œsophagoscope with a small child necessitates a deeper anæsthesia, a possibility of injuring the delicate structures at the back of the throat and sometimes sets up a fatal edema of the glottis or a broncho-pneumonia. I saw two cases in which children died from broncho-pneumonia in 48 hours after the use of the osophagoscope for removal of coins, though both children were perfectly well (save for the presence of the swallowed coin) on admission.—I am, Sir, yours faithfully,

CHARLES H. CARROLL.

Lancaster-road, N.W., Dec. 31st, 1919.

THE ELSIE INGLIS MEMORIAL.

To the Editor of THE LANCET.

SIR,—In the annotation in your issue of Jan. 3rd one memorial seems to have escaped mention. I refer to the Elsie Inglis Memorial Chair in the Faculty of Medicine at the University of Belgrade. It owes its inception to the London Committee of the Scottish Women's Hospitals, and was inaugurated by a meeting at the Mansion House in June, 1918.

Thanks to the geographical position of our own land the material damage it sustained during the war was trifling, and the difficulties experienced in our medical schools and colleges are due to increased attendance, not to diminished accommodation. In Belgrade there has to be a material reconstruction of shell-shattered lecture-rooms and laboratories before any instruction can be given.

This association of Dr. Elsie Inglis's name with medical education, that she had so much at heart, and reconstruction of that country, in whose service she spent herself so unsparingly, even to the last moments of her life, seems a particularly happy one; it should commend itself to members of the medical profession in Britain, whose admiration for the courage and sympathy with the sufferings of our gallant ally have been already manifested in so many ways.

A substantial beginning has been made, but funds are still needed to complete the scheme, and may be sent to Lady Selborne, honorary secretary, Elsie Inglis London Memorial Fund, 16, Carlton House Terrace.

I am, Sir, yours faithfully,

LINA M. POTTER,
late Medical Officer to Russian Unit,
Scottish Women's Hospital.

Kensington, W., Jan. 6th, 1920.

MYALGIC PAINS AND MANIPULATION.

To the Editor of THE LANCET.

SIR,—I have read the letter of "Non quis, sed quid" in your issue of Dec. 20th, 1919, with considerable interest. Cases such as he details are not uncommon, nor is the eventual result, to wit, cure at the hands of an irregular practitioner or "bone-setter" after failure on the part of the regularly qualified very uncommon either. Such cases are too numerous and too often vouched for either actually by medical men, or, if not, by individuals whose powers of scientific observation and criticism are beyond cavil, to be merely disregarded. That these things should be so is not very creditable to our profession. There can be no doubt that there is "something in" manipulative surgery the knowledge of which is not merely still undiffused through the profession, but of which even orthopædic surgeons have by no means a full knowledge.

The commonest type of case to be benefited by manipulative surgery is found among internal derangements of the knee-joint. There can be no doubt that many patients have gained stability and perfect restoration of function in the knee-joint by the agency of manipulative procedures, without recourse to any cutting operation. Occasionally such manipulations no doubt fail, but in that case no harm has been done as nothing in the manipulations prejudices the success of the arthrotomy which is still available. On the other hand, should an unsuccessful arthrotomy be performed, and this is an eventuality which is by no means unknown, the chances of a successful manipulation being performed subsequently are greatly lessened. While internal derangements of the knee-joint have constituted the most fruitful field in the past for the triumphs of manipulative surgery, there is no doubt also a class of case, to which that of "Non quis, sed quid" belongs, consisting of some obscure derangement of the tendons or articulations in the lumbar and sacro-iliac regions, which also provides a field for skilled manipulation.

I suggest that it is consonant with the dignity of the Royal College of Surgeons of England to appoint a small commission to inquire into manipulative surgery. The really expert practitioners of this art are not very numerous, and I cannot think that they would object to giving evidence and demonstrations before such a commission. It is up to the medical profession to give them the opportunity. It is no reproach to us that persons outside the profession should have discovered useful therapeutic methods, but it would be deplorable that we, because we are affected by prejudice, should fail to do our best to make such methods available to the whole of suffering humanity.

I am, Sir, yours faithfully,

Dec. 26th, 1919. HALDIN DAVIS, F.R.C.S. Eng.

"MIND AND ITS DISORDERS."

To the Editor of THE LANCET.

SIR,—May I put some points to the reviewer of Dr. W. H. B. Stoddart's book, "Mind and its Disorders," in THE LANCET of Dec. 20th? The "cortical paralysis" from "intraneuronic intoxication" mentioned by Dr. Stoddart is said to "go strangely" with the causes of maniac-depressive insanity, which the author of the book describes as "parental fixations and repressed homosexuality." At first sight this might appear so. But, of course, there are two possibilities that come at once to the mind, upon which I should like to hear opinions. The adoption of one or other of these possibilities as a working hypothesis will depend upon whether we try to subordinate classical views to Freudian ones, or whether we attempt to bring in psycho-analysis as a vassal to the older psychiatry. Suppose we consider the intraneuronic intoxication as the primary cause of the disease, then we know that as a result many psychic abnormalities make their appearance in the higher realms of thought and reason. The form these abnormalities take is the point of interest to the psychologist, and it may be assumed that whatever particular attitude of mind or character trait it was hardest for the individual to attain under the influence of his educational surroundings, that will be the first point of his psychology to give way under the stress of disease and cease being rationalised. Now, what are repressed homosexuality and parental fixations if not weak points in the individual's adapted mentality? In this case psycho-analysis would not be showing us the primary cause of the disease, but only the factors that determine the form of the symptomatic disorders.

If, on the other hand, we assume these repressions and fixations to be the fundamental cause of maniac-depressive insanity, we must inquire into the significance of the intraneuronic intoxication. Does or does not an organ which, as a result of functional disorder, exhibits excessive activity in certain directions and diminished action in others, so destroy its internal economy as to have its vitality and resisting powers lowered to the extent of offering a likelier footing for any possible toxæmia? If so, it might well be that the abnormal functionings consequent upon repressions and fixations lay the higher cerebral centres open to the toxæmic changes that so frequently occur in the case of other organs as a result of lowered vitality and resistance.

At any rate, could it not be possible to reconcile the two points of view, rather than shutting oneself up in such a little world of one's own as debars one from accepting, let alone considering, views that are not in complete accordance with previously adopted hypotheses. I quite agree with the reviewer that it is to be regretted that Dr. Stoddart exemplifies so his views on symbolisms, especially as the book is addressed to students and general practitioners—that is, to a class of people that are probably totally unacquainted with the first and fundamental principles of psycho-analysis, and, indeed, may perhaps never have read such excellent books as have been published on sex symbolisms in religion, quite apart from analytical psychology.

I can see Dr. Stoddart smile, however, when he finds himself described as the possessor of an "unfortunate penchant for certain unpleasant phases of thought." So well does he know that a biased and instinctive dislike to a particular phase of thought is frequently but a reaction formation indicative of a personal difficulty in a similar phase of thought with subsequent repression on the part of the critic, that I am afraid that he will find additional support for the Freudian psychology in such undue criticisms.

I am, Sir, yours faithfully,

J. ERNEST NICOLE.

Kensington and Fulham General Hospital, Dec. 31st, 1919.

DIRECT INFECTION IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I have been very much interested in Dr. E. Ward's interesting articles in THE LANCET on the above subject and the kindred one relating to conjugal tuberculosis. With almost all he says I am in complete accord, and I think we owe him a great debt for bringing this matter prominently before the profession at a time when such erroneous views are being ventilated with such confidence. I am, however, against regarding all cases of tuberculosis as infectious, and in his last article he has shown how foolishly the infectivity of some forms of tuberculosis can be exploited even by members of the medical profession. The question of infection is, of course, relative, and becomes almost negligible when reasonable precautions are taken, even in cases where there is abundant infective sputum; but if these precautions are omitted, as they will sure to be if the present erroneous views are further promulgated, infection is bound to follow. I would, however, remark that it is not necessarily from advanced cases that infection takes place, but often from unsuspected carriers. I remember some years ago admitting a patient whose sister had died of tubercular meningitis shortly before, and the family seemed to think that the one that had died had infected my patient. I discovered that until she was seized with head symptoms she had been in good health, but had been sleeping with my patient, who for some months had been attending the doctor for hoarseness; this was found to be due to tubercular laryngitis on admission, and events had happened as could have been foretold, the healthy girl being unprotected died of meningitis, a comparatively rare event in the course of chronic disease. This emphasises my contention that to eradicate tuberculosis the disease must be diagnosed much sooner and the cases treated in sanatoriums before they are hopeless.

I have during the last three months had four cases of well-marked tuberculosis occurring in married people. I have no doubt that infection may walk hand-in-hand with infection in many of these cases, and the seriousness of the result will depend upon the magnitude of the dose, the virulence of the bacilli, and the state of resistance of the recipient. The result being, as Dr. Ward points out, much worse in the case of a healthy previously uninfected partner.

I am, Sir, yours faithfully,

New Cumnock, Jan. 4th, 1920. EDWARD E. PREST.

Obituary.

SIR THOMAS RICHARD FRASER, M.D., F.R.C.P., LL.D. EDIN., LL.D. ABERD. AND GLASG., HON. SC.D. CAMB., HON. M.D. DUBL.,

EMERITUS PROFESSOR OF MATERIA MEDICA AND CLINICAL MEDICINE IN THE UNIVERSITY OF EDINBURGH, AND PHYSICIAN-IN-ORDINARY TO THE KING IN SCOTLAND.

WE much regret to announce the death of Sir Thomas Fraser, the veteran Professor of Materia Medica and Clinical Medicine at Edinburgh, who died on Jan. 4th at his residence, Drumsheugh Gardens, in the 79th year of his age.

Thomas Fraser was a Roxburghshire man, but his father had business relations with India, and the son was born in Calcutta in 1841. Educated in Edinburgh, he graduated in medicine at the age of 21 and immediately manifested the direction which his scientific abilities would take by obtaining the gold medal for his graduation thesis "On the Characters, Actions, and Therapeutic Uses of the Ordeal Bean" (Calabar bean, *Physostigma venenosum*). Further studies along this line, published in the *Natural History Magazine* of Edinburgh, the now defunct *Medical and Chirurgical Review*, and the Proceedings of the Royal Society of Edinburgh, were a prelude to his appointment first as assistant to Sir Robert Christison, the famous Professor of Materia Medica, and later, but at the early age of 28, as lecturer in his chosen subjects in the extra-mural school. This post he held for four years, and then, after a brief period of sanitary work in England, he was summoned back to Edinburgh in 1877 as Professor of Materia Medica in succession to Christison. From this time forward he became one of the leading pharmacologists in the country, and, indeed, in the world, and his work in association with Christison, Crum Brown, Lauder Brunton, William Roberts, and later Cushny and Elliot, has done much to secure the transformation of the drug treatment of disease from empiricism to scientific routine.

To these men, and others like Magendie and Bichat, medicine owes an unpayable debt, and in an address delivered before the Section of Pharmacology and Therapeutics at the meeting of the British Association held in Cardiff in 1885 Fraser gave a remarkable exposition of the aims of the coming pharmacology. The change in direction of pharmacological studies was indicated by his statement that he regarded pharmacology as one of the means by which the great aim of medicine, the healing of disease, could be reached, adding that as the use of drugs was one of the essential means for healing, so it therefore became of importance to arrive at a clear conception of the methods by which the investigation of pharmacological problems could be effected. This was the note of all his future work. It meant the substitution for the old-fashioned methods, whereby the action of remedies was studied through their administration in disease, of a newer science in which, the essential nature of the pathological process having been defined, accurate biological and chemical knowledge was employed to produce the substance which ought to deal with the perverted process. This application of pharmacological knowledge to the cure of disease, a problem entirely separated from that of determining the action of remedies, was illustrated by his earliest work in connexion with physostigmine, its relations to atropine, and their uses in ophthalmic procedure; his next big research into the properties of strophanthus had a similar scope. For an important publication now followed, in which he demonstrated the diuretic powers of this new drug, showing how these had been discovered and could be utilised as a cardiac remedy. An investigation of "kombé," the arrow poison of certain African tribes, revealed the plant to yield an active principle, strophanthin, and Fraser proved by experiments that this crystalline substance was in physiological action allied to digitalin and other members of the digitalis group. This discovery he set out in a paper, published in the *British Medical Journal*, which literally bristled with records of past work and notes on recent experiments, and put out all that was then known of the actions and uses of digitalis and of its substitutes, with special reference to strophanthus. The paper was recognised on all sides to be an example of the best kind of practical investigation in therapeutics, and it has formed a pattern for similar researches in many instances.

During the next decade similar practical work followed from Fraser's researches, papers on the use of nitrites in the dyspnœa of asthma and bronchitis, on the relative value of opium, morphine, and codeine in diabetes, on bichromate of potassium as a remedy in gastric affections, and on bone marrow in the treatment of pernicious anæmia being published in the *British Medical Journal*, THE LANCET, and the Transactions of the Medico-Chirurgical Society of Edinburgh. But practical progress along these lines was hampered in rather a curious manner by actual developments in chemical knowledge. This Fraser pointed out in an address delivered at the medical graduation ceremonial at Edinburgh in 1894, and published in THE LANCET. He then said that in his department of therapeutics shallow pretentions had for centuries been rife and were now being more boldly advanced than ever, with the knowledge that suffering humanity, being naturally anxious for relief, was prone to credit dogmatic assertions, especially if accompanied with a misuse of scientific phraseology. His words were a distinct warning to all that the recent advances in organic chemistry, which had led to the discovery of an unlimited number of complex substances with possible physiological actions, had brought with them temptations to charlatanism. He considered that medical men, as well as commercial chemists, were advocating the use for all sorts and conditions of disease of remedies to which no proper trial could be given, and pointed out that the determination of the physiological action of any substance, organic or inorganic, might require at least six months' study by a skilled investigator. The warning was timely and came from the right lips.

One particular direction of Fraser's work requires further mention—namely, his investigations into snake-poisoning. His researches into the action of snake-poisoning, especially the poison of the cobra, were largely made in association with Lauder Brunton and in continuation of the labours of the late Sir Joseph Fayrer, while later and in association with Major R. H. Elliot he gave the medical profession such exact knowledge as it possesses of the effect upon the cardiac action of cobra venom. Fraser and Elliot discovered that different venoms differ greatly as regards their degree of toxicity, and that the minimal lethal dose of any given venom varies somewhat for different animals, weight for weight. The animals employed were rats, rabbits, and cats, and it was found that the venom of the sea-snake produced totally different experimental results from those produced by cobra poisoning. The actions of venoms upon the circulation and the heart, previously noted by Brunton and Fayrer, were next completely studied by Fraser in collaboration with Elliot, and the result of this work was to indicate the complexity of venom substances and the variety of symptoms produced according to the amount of venom injected and the site of the injection. It was obvious, therefore, that any attempt to remove and destroy the venom deposited locally might have to be founded upon the endeavour to neutralise the poison absorbed into the general circulation, inasmuch as the attempt to deal with the injury at its site, by ligature or cautery, would be bound to fail unless put in action with an impossible promptitude. A serum treatment for snake-poisoning was thus clearly indicated, and here Calmette and Fraser were the pioneers. In 1894 Calmette published an account of extended researches into the production of immunity against snake venom among animals subjected to experimental injection. In 1895 Fraser published his account of the antidotal properties of the blood serum of immunised animals and of venomous serpents, and in the following year a paper in the *British Medical Journal* from his pen carried the subject on further, when he pointed out the limitations of the antidotal powers of antitoxin as illustrated in the antagonism between antivenene and snake venom.

In 1898 the prevalence of plague in India led to the sending out of a Scientific Commission to inquire into the cause of the epidemic, the conditions of the spread, and the methods of prevention that might be taken. Fraser was selected to act as chairman of the Commission and proceeded for a year to India in this capacity. The work of the Commission has been recognised as adding largely to our knowledge of the propagation and prevention of plague. His appointment was a public recognition of his position as clinician as well as pharmacologist, for all his work was done with appreciation of the intimate relations that must exist between therapeutics, where he was a discoverer, and clinical medicine, where in his capacity of physician to the Royal Infirmary he was an assiduous officer and successful teacher. He was, moreover, actively interested in the cause of medical education. Dean of the Faculty of Medicine of the University for a long period, he was examiner in materia medica and public health at the University of London, and in materia medica at his own University, which he also represented for some years on the General Medical Council.

The respect in which he was held is indicated by the academic honours which he received. He was a Fellow of the Royal Society, five great British universities presented him with honorary degrees, and he was also a Fellow of the Academy of Medicine of Turin and of the Philadelphia College of Physicians. He succeeded Sir William Gairdner as honorary physician to the King in Scotland, and duly received the honour of knighthood. He carried on his work as professor at the University, in spite of failing health, until the summer of 1918, when he was succeeded in the chair of Materia Medica by Professor A. R. Cushny. On his retirement the University of Edinburgh bestowed upon him the honorary degree of LL.D., and at the same time he was presented with his portrait. Alike as discoverer, teacher, and organiser, Fraser has left an abiding mark, not only upon his famous University, but upon the medical history of the country.

Sir Thomas Fraser married Susanna, daughter of the Rev. R. Duncan, by whom he had a large family. Of this the war took heavy toll, for one of his sons was killed in France and one perished in the foundering of a submarine, while a husband of one of his daughters was also killed and another son wounded. One of his surviving sons, a well-known physician in New York, accompanied the American army to France and is at present with the army on the Rhine.

GEORGE CARTER LOWE, F.R.C.V.S., M.R.C.S. ENG.

IN THE LANCET of Dec. 27th, 1919, appeared an obituary notice of Dr. Arthur Rieussett Litteljohn, who, after upbringing as a veterinary surgeon, turned to human medicine and became a valued official in the medical department of the Local Government Board. Dr. George Carter Lowe, who died on Dec. 9th, also belonged to that small band of clinicians qualified to treat both man and beast. He was born in Bermondsey in 1869, the son of a well-known veterinary surgeon with an extensive practice in Bermondsey and Southwark. After an education at the St. Olave's Grammar School he entered as veterinary student at the Royal College in 1887, qualifying M.R.C.V.S. in 1892, and after his father's death continued his practice at Oxley-street, Bermondsey. In 1906 he took his F.R.C.V.S. with a thesis on "Periarticular Ringbone in the Horse." Just previous to this he entered Guy's Hospital as a medical student, and obtained the qualification of the Conjoint Board in 1911. Dr. George Lowe then joined the partnership of Drs. Salter, Richmond, Stratton, and Goldie, and practised in Bermondsey until his death. He was doing full work up to Dec. 6th, on the evening of which he complained of a sore throat. The next day he was found to be suffering from suppurative tonsillitis with septic faucitis, which developed into general septicæmia, death occurring quite suddenly on the evening of Dec. 9th. His remains were cremated at Golders Green on Dec. 12th.

Dr. Lowe identified himself with the social life of the community to whose physical needs he ministered. He was president of the Bermondsey Adult School and treasurer of the Independent Labour Party. His good works were done by stealth, and his best memorial is a fragrant memory in a district where life is drab.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg.-Lieuts. L. W. Gemmell and D. A. P. Clarke are transferred to the permanent list of Surgeon-Lieutenants.

ARMY MEDICAL SERVICE.

Col. G. Dansey-Browning is placed on the half-pay list.

Temp. Col. E. F. Buzzard (Captain, R.A.M.C. T.F.) relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. C. J. O'Gorman relinquishes the temporary rank of Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors C. W. Bowle, E. D. Caddell, E. L. Moss, G. H. Stevenson; Temp. Capt. L. D. Shaw.

Temp. Capt. E. Biddle relinquishes the acting rank of Major.

The undermentioned Captains are seconded for service with the Egyptian Army: (Bt. Major) W. E. Marshall, J. Biggam, K. P. Mackenzie.

Major W. M. Power, from the half-pay list, retires on retired pay on account of ill-health.

Capt. G. S. Parkinson to be temporary Major whilst specially employed.

H. E. L. Canney, late temporary Major, to be temporary Major.

Late temporary Captains to be temporary Captains: G. Fleming, J. N. G. W. McMorris, A. Vella.

Temp. Capt. J. Higgins to be Captain.

The undermentioned Lieutenants (temporary Captains) to be Captains: W. E. Hodgins, T. S. Law.

Temp. Lieut. J. A. P. Cullen to be temporary Captain.

Lieut. E. H. W. Elkington, from Can. A.M.C., to be Lieutenant and to be temporary Captain.

W. H. Steavenson to be temporary Lieutenant.

Officers relinquishing their commissions: Temp. Hon. Lieut.-Col. M. Gamble (and retains his honorary rank). Temp. Capts. A. Anderson, (acting Major) F. G. W. Deane (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: A. S. K. Anderson, J. B. Haycraft, F. De S. McMenamin, W. Martin, E. McCulloch, E. G. Dingley, G. R. B. Purce, G. W. R. Rudkin, M. Bates, J. S. Doyle, D. B. Pascall. Temporary Captains retaining the rank of Captain: A. Renshaw, W. E. Hopkins, F. J. Strachan, E. Grey, A. J. Will, R. Thomson, N. S. Sherrard, J. D. Wright, R. H. Thomson, R. Ward, H. A. Ash, H. L. Flint, J. C. McWalter, R. S. Harvey, W. J. Poole, C. E. Sharp, O. R. Allison, J. C. Robb, H. G. Oliver, D. Malloch, J. P. Dee, D. L. Spence, W. Howat, A. R. Moore, A. E. Foerster, J. H. D. Phelps, D. Denlop, J. Menzies, S. E. Y. Elliott, H. Mortimer, R. A. Fuller, G. Habgood, N. H. Smith, V. M. Coates, F. Newey, H. J. Burke, C. G. Harmer, L. Hutchinson, A. Gregory, J. F. Allan, P. S. Marshall, V. St. L. Pinnock, W. T. Currie, J. H. Murray, R. W. Murphy, E. T. Glenny, J. A. MacArthur, T. Forsyth, J. Paxton, B. P. Parmiter, L. M. Mayers, A. L. E. F. Coleman, E. Morison, N. Reader, B. J. Cusack, S. Murray, J. Dunlop, L. W. Bain, W. J. Macdonald, H. Richmond, A. E. Schokman, R. McLean, J. A. P. Cullen, S. P. Rowlands, I. C. MacKenzie, J. Porter, J. I. Enright, J. Avery, S. J. Darke, T. W. Bayne, H. P. Fairlie, J. D. MacEwen, J. C. Knox, D. S. Campbell, R. M. McMinn, R. Brown, W. L. Cassells, S. P. Stoker, S. A. Furlong, P. D. Magowan. Temp. Lieut. P. J. F. Lynch (and retains the rank of Lieutenant).

TERRITORIAL FORCE.

Lieut.-Col. W. B. Mackay relinquishes his commission on account of ill-health contracted on active service, and retains the rank of Lieutenant-Colonel.

Major (acting Lieut.-Col.) W. A. Thompson, Capt. (acting Lieut.-Col.) F. G. Dobson, Capts. (acting Majors) L. N. Reece, D. C. Bremner, J. Everidge, F. W. K. Tough, and A. P. Thomson relinquish their acting rank on ceasing to be specially employed.

Capt. F. Ellis relinquishes his commission on account of ill-health caused by wounds, and is granted the rank of Major.

1st London Sanitary Company: Lieut. J. T. A. Walker to be Captain.

1st Northern General Hospital: Capt. N. Hodgson is restored to the establishment.

SPECIAL RESERVE OF OFFICERS.

Capt. J. B. Hanna relinquishes the acting rank of Major.

The undermentioned Lieutenants to be Captains: W. E. P. Briggs, G. Winter, G. S. Lewis, W. Oats.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capts. W. L. Scott, R. W. Meller, J. E. Lascelles, L. A. Walker, H. Y. Riddell, C. H. Browne, and (acting Major) L. C. McL. Wedderburn.

Dental Branch.—Capt. N. H. Medhurst is transferred to unemployed list.

INDIA AND THE INDIAN MEDICAL SERVICE.

Major-Gen. G. G. Giffard, Surgeon-General to the Government of Madras, has been appointed Honorary Surgeon to the King-Emperor. Lieut.-Col. A. W. T. Buist has made over charge of the duties of Superintendent of the District Jail at Rawalpindi to Raj Sahib Lalla Gopal Das, officiating Civil Surgeon, Rawalpindi. Lieut.-Col. J. Stephenson, Principal, Government College, Lahore, has been granted one year's leave preparatory to retirement. Major W. D. Overbeck Wright is permanently posted to the United Provinces. Lieut.-Col. J. C. H. Leicester is officiating as Professor of Midwifery, Medical College, Calcutta. Dr. Baij Nath Vyas Rai Bahadur, Civil Surgeon, on special duty, is to hold civil medical charge of the Morabad District, in addition to his own duties, vice Major H. P. Cook, I.M.S., Civil Surgeon, who has been granted leave. The local Government has nominated Lieut.-Col. W. H. E. Woodwright officiating Inspector-General of Civil Hospitals, United Provinces, to be President of the United Provinces Medical Council, vice Col. C. Mactaggart, resigned. The Viceroy has selected Col. J. K. Close, officiating Surgeon-General with the Government of Bengal, for the appointment of Inspector-General of Civil Hospitals, United Provinces, in succession to Col. C. Mactaggart, who has proceeded on leave preparatory to retirement. Col. Close has spent many years of his service in the United Provinces, and his appointment will be cordially approved by all acquainted with his professional zeal.

URBAN VITAL STATISTICS.

(Week ended Jan. 3rd, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·9, 14·6, and 12·0 in the three preceding weeks, rose to 16·2 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 17·0, or 6·4 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 7·0 in Eastbourne, 8·8 in Wimbledon, and 9·1 in Aberdare, to 22·6 in Hastings, 22·7 in West Hartlepool, and 27·2 in Bury The principal epidemic diseases caused 358 deaths, which corresponded to an annual rate of 1·1 per 1000, and comprised 111 from measles, 93 from diphtheria, 72 from whooping cough, 55 from infantile diarrhœa, 21 from scarlet fever, and from enteric fever. Measles caused a death-rate of 1·4 in Liverpool, 1·5 in Preston, 1·7 in Plymouth and in Darlington and 2·3 in Grimsby and in Bootle; whooping-cough o 1·4 in Norwich, 1·6 in Grimsby, and 2·0 in Aberdare; and diphtheria of 1·1 in Nottingham and in Swansea, 1·2 in Tottenham and in East Ham, and 1·3 in York. The 52 deaths from influenza were 9 in excess of the numbe in the previous week, and included 19 in London and in Salford. There were 2926 cases of scarlet fever and 1873 of diphtheria under treatment in the Metropolita Asylums Hospitals and the London Fever Hospital, agains 2873 and 1862 respectively at the end of the previous week The causes of 47 deaths in the 96 towns were uncertified and included 7 in Birmingham, 6 in London, 4 in Liverpool and 3 in Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggre gate population estimated at nearly 2,500,000 persons, th annual rate of mortality, which had been 13·5, 13·2, and 14· in the three preceding weeks, rose to 15·9 per 1000. Th 328 deaths in Glasgow corresponded to an annual rate o 15·3 per 1000, and included 8 from diphtheria, 7 fro infantile diarrhœa, 5 from whooping-cough, 2 from measles and 1 from scarlet fever. The 97 deaths in Edinburgh wer equal to a rate of 15·0 per 1000, and included 3 fro diphtheria and 2 from scarlet fever.

Irish Towns.—The 155 deaths in Dublin corresponded t an annual rate of 20·0, or 8·2 per 1000 above that recorded i the previous week, and included 4 from infantile diarrhœ 2 from whooping-cough, and 1 each from enteric feve measles, and diphtheria. The 197 deaths in Belfast wer equal to a rate of 25·6 per 1000, and included 26 fro measles, 8 from scarlet fever, 4 from infantile diarrhœ 3 from enteric fever, and 1 each from whooping-cough an diphtheria.

Medical News.

University of Cambridge: Diploma in Radiology and Electrology.—Courses of lectures and practical work in Part I. (*a* and *b*) will be given at the Cavendish Laboratory, Cambridge, by Mr. J. A. Crowther, beginning Jan. 20th. Courses of lectures in Part II. (*b*) will be given in the Medical Schools, Cambridge, beginning Jan. 19th, by Dr. E. P. Cumberbatch (St. Bartholomew's Hospital), Dr. C. E. Iredell (Guy's Hospital), Dr. F. Shillington Scales (Cambridge), Dr. W. J. Turrell (Oxford), and Dr. R. S. Woods (London Hospital), as far as at present arranged. Application for attendance at these courses should be made to Dr. F. Shillington Scales, Medical Schools, Cambridge. The following hospitals are recognised by the University of Cambridge for clinical instruction in the Radiological and Electrical Department: Addenbrooke's, Cambridge; Charing Cross; Guy's; King's College; London; Middlesex; St. Bartholomew's; St. George's; St. Mary's; St. Thomas's; University College; Westminster; Royal Free; Cancer Hospital (Brompton); Hospital for Consumption (Brompton). The date of the next examination, to be held at Cambridge, has been provisionally fixed for July, 1920. Similar courses in Parts I. and II., recognised by the University of Cambridge, will be given in London, where application should be made to Dr. Robert Knox, 38, Harley-street, W.

University of London.—At a meeting of the Senate on Dec. 17th last, Dr. Sydney Russell Wells was elected Vice-Chancellor for the remainder of the year 1919–20, in the place of Sir Cooper Perry, who has been appointed Principal. Professor William Bulloch, F.R.S., was appointed as from Jan. 1st the first occupant of the newly established Goldsmiths' Company's chair of Bacteriology tenable at the London Hospital Medical College. The Senate invite applications for the University chair of Pathology tenable at the Middlesex Hospital Medical School. The salary will be £800 a year. Applications, accompanied by copies of not more than three testimonials and the names of not more than three persons to whom reference may be made, should be received not later than the first post on Tuesday, Jan. 27th, at the University, South Kensington, S.W. 7, by the Academic Registrar, from whom further particulars may be obtained. Twelve copies of all documents must be furnished, and envelopes should be marked "Chair of Pathology." An additional First Examination for Medical Degrees will be held in March, commencing on Monday, the 22nd. Applications for forms of entry must be made to the Academic Registrar, at the University, before Feb. 18th.

Advanced Lectures in Physiology.—The following courses of Advanced Lectures in Physiology, recognised by the University of London as advanced lectures which a candidate at the B.Sc. Honours Examination may name for part of his examination, have been arranged for the second term of the session 1919–20: (1) "Physiologically Balanced Solutions," eight lectures by Mr. W. L. Symes, M.R.C.S., in the Physiological Laboratory of the University, South Kensington, on Tuesdays, at 5 P.M., beginning on Jan. 27th. (2) "The Reaction of the Blood and Acidosis," eight lectures by Dr. J. W. Trevan, at St. Bartholomew's Hospital, on Wednesdays, at 4.30 P.M., beginning on Jan. 28th. (3) "The Regulation of Respiration," eight lectures by Dr. M. S. Pembrey and Dr. J. H. Ryffel, at Guy's Hospital, on Thursdays, at 4.30 P.M., beginning on Jan. 8th. These courses of lectures are addressed to advanced students of the University and to others interested in the subjects dealt with, and admission is free, without ticket.

The next annual congress of the Ophthalmological Society of the United Kingdom will be held on Thursday, Friday, and Saturday, April 29th and 30th, and May 1st, 1920, under the presidency of Mr. J. B. Story. The arrangements include meetings at the Royal Society of Medicine, 1, Wimpole-street, London, at the Royal London Ophthalmic Hospital, City-road, E.C., and at St. Margaret's Hospital, Leighton-road, N.W., the special hospital of the Metropolitan Asylums Board for cases of ophthalmic neonatorum. Among the subjects to be discussed are "Diabetes in Relation to Diseases of the Eye," and "The Prevention and Treatment of Ophthalmia Neonatorum," and members desirous of reading papers, showing cases, or taking part in the discussions, are requested to communicate as soon as possible with Mr. F. A. Juler, 24, Cavendish-square, London, W. 1. Papers and communications, subject to the judgment of the council, will be printed in full in the Transactions. Members are reminded that under the by-laws papers must not exceed 20 minutes in length and subsequent speeches 10 minutes, and that all communications must be typewritten.

Royal College of Surgeons of England.—Six Hunterian lectures on John Hunter's Observations and Discoveries in Anatomy and Surgery, illustrated by his specimens and preparations, will be delivered in the theatre of the College in Lincoln's Inn-fields, by Professor Arthur Keith, Conservator of the Museum, at 5 P.M. on each of the days mentioned:—I., Monday, Jan. 19th: His Contributions to Our Knowledge of the Heart and Blood-vessels. II., Wednesday, Jan. 21st: His Contributions to Our Knowledge of the Lungs and Pleuræ. III., Friday, Jan. 23rd: His Contributions to Our Knowledge of the Alimentary System. IV., Monday, Jan. 26th: His Contributions to Our Knowledge of the Kidneys, Bladder, and Urethra, and Diseases Connected with these Structures. V., Wednesday, Jan. 28th: His Contributions to Our Knowledge of the Genital and Reproductive Systems. VI., Friday, Jan. 30th: His Contributions to Our Knowledge of the Eye, Ear, and Nose.

West London Medico-Chirurgical Society.—A clinical meeting will be held to-day (Friday, Jan. 9th), at 8 P.M., in the society's rooms, West London Hospital, when Mr. W. H. Trethowan will show Six Cases of Bone Graft (from the Shepherd's Bush Special Surgical Hospital).

Royal Institution.—On Tuesday next (Jan. 13th), at 3 P.M., Sir Johan Cadman will deliver the first of two lectures at the Royal Institution on (1) Modern Development of the Miner's Safety Lamp; (2) Petroleum and the War. The Friday evening discourse on Jan. 16th at 9 o'clock will be delivered by Sir James Dewar on Low Temperature Studies, and on Jan. 23rd by the Hon. Sir Charles Parsons on Researches at High Pressures and Temperatures.

The Tuberculosis Society.—The adjourned joint meeting of this society and the Association of School Medical Officers will be held on Monday, Jan. 12th, at the rooms of the Medical Society of London, 11, Chandos-street, W., at 7.30 P.M., when the discussion on the Various Aspects of Tuberculosis as Affecting Child Life will be resumed by Dr. F. W. Higgs, Dr. Letitia Fairfield, Dr. Jane Walker, Dr. J. Watt, and others.—On Jan. 19th, at 8 P.M., Sir Henry Gauvain will read a paper on Surgical Tuberculosis from the Point of View of the Tuberculosis Officer.

Scottish Otological and Laryngological Society.—The society met in the Western Infirmary, Glasgow, on Dec 13th, 1919, the President, Dr. W. T. Gardiner, in the chair. The President showed a patient with total deafness associated with vertigo; the vertigo preceded the deafness by three weeks, the deafness coming on suddenly. Dr. R. P. Mathers showed an ex-soldier suffering from stenosis of the trachea following a bullet wound. Dr. A. A. Gray gave a demonstration illustrating the comparative anatomy of the membranous labyrinth. Dr. W. S. Syme showed a man whose larynx he had removed nearly two years ago for malignant disease; there had been no recurrence, and the man had developed a good pharyngeal voice. Dr. James Adam showed a woman with a growth of the hypopharynx of 13 years' duration, which had twice disappeared under radium and recurred. He also raised the question whether, in all cases of purulent rhinitis in children which fail to respond to a few months of ordinary treatment, the maxillary, like the mastoid antrum, should be explored. A discussion followed, which it was decided to continue at a future meeting. Dr. Kerr Love read a short paper on electrical aids to hearing, based on an experiment in the case of 70 deaf children.

The Mental Hospital Service of the London County Council.—The London County Council invite applications from qualified medical men for the appointments of fifth and sixth assistant medical officers in the London County Mental Hospital Service. There are vacancies at present for fifth assistant medical officers at Banstead Mental Hospital, Banstead, Surrey; Cane Hill Mental Hospital, Coulsdon, Surrey; Long Grove Mental Hospital, Epsom, Surrey; and for sixth assistant medical officers at Banstead Mental Hospital; Bexley Mental Hospital, Bexley, Kent; Cane Hill Mental Hospital; Claybury Mental Hospital, Woodford Bridge, Essex; Colney Hatch Mental Hospital, New Southgate, N.; Hanwell Mental Hospital, Hanwell, W.; Long Grove Mental Hospital. The remuneration attached to each appointment is at the rate of £300 a year, rising by £25 a year to £400 a year, and war bonus and a percentage addition have been granted by the Council, amounting to from £130 to £153 a year in addition to the scale salary. The question of the continuation or otherwise of the grant is under consideration by the Council. The appointments are pensionable. Candidates should not exceed 35 years of age. Forms of application, containing particulars of other conditions of appointment, can be obtained from the Asylums Officer, London County Council, 13, Arundel-street, Strand, London, W.C. 2, to whom a stamped addressed foolscap envelope should be sent for reply.

Mr. Joseph Watson, of Wetherby, has given £50,000 to the Leeds General Infirmary as a New Year's gift, on condition that the sum of £10,000 shall be invested and the proceeds devoted to a nurses' pension fund.

HUMANISED MILK AND PROFITEERING.—Recently at Exeter a local dairy was brought before the Profiteering Committee for charging 1*s.* 6*d.* per pint for humanised milk. The committee decided the charge was too much, and ordered that 3*d.* per pint should be refunded.

BATH PENSIONS HOSPITAL.—The Bath War Hospital has been acquired by the Ministry of Pensions for the treatment of discharged and disabled soldiers. The institution will be a centre for the treatment of disabled pensioners, and is to be known as the Bath Pensions Hospital. The commandant will be Lieutenant-Colonel Milne Thompson.

BRISTOL MEDICAL CHARITIES.—The voluntary medical institutions of the city are faced by considerable financial difficulties. In the local press the secretary to the Royal Infirmary points out the great increase in the cost of equipment; the secretary to the General Hospital, which is usually regarded as holding the soundest financial position of all the hospitals, says that the adverse balance is not far short of £10,000; while the Bristol Dispensary is also in great difficulties. The Children's and Eye Hospitals are believed to be contemplating rebuilding or extension schemes. Having regard to these conditions and the urgent need for improvement in many aspects of hospital work, the Lord Mayor of Bristol has decided to consider the hospital problem as a whole. There is reason to believe that this decision will meet with a cordial welcome from the various institutions, whose administrative and medical staffs are anxious to find some means of enhancing efficiency by coöperation.

ST. GEORGE'S HOSPITAL.—Dr. Robert Donaldson, F.R.C.S., D.P.H., pathologist and bacteriologist to the Royal Berkshire Hospital, has been appointed pathologist and curator of the museum at St. George's Hospital. This appointment was held by the late Dr. R. Salusbury Trevor, and since he died the work of the curator has been carried on by Miss Helen Ingleby, M.R.C.P., and Sir Humphry Rolleston, K.C.B., has been supervising the pathological laboratory as an honorary duty. The combined post will now be filled by Dr. Donaldson, who during the war was bacteriological specialist to the war hospital laboratory at Reading.

PRESENTATION TO A MEDICAL MAN.—An interesting ceremony recently took place at the Norfolk War Hospital (which has now resumed its normal function as the Norfolk County Asylum), when a presentation was made to Dr. David Thomson, C.B.E., by the permanent heads of departments of the hospital. The presentation, consisting of an illuminated address and an aneroid barometer, was made by the matron, Miss Hamer, as senior officer, in a felicitous little speech, in which she expressed the confidence felt by all the members of the staff in so able and enthusiastic a commanding officer. She stated that during the four and a half years the hospital was open 45,000 sick and wounded soldiers had been under treatment in the wards. A bouquet was presented to Mrs. Thomson, and Dr. Thomson, in reply, said that the highest praise and honour to which any man could attain was the appreciation of his fellow workers.

THE LATE MR. G. C. SEARLE.—George Clement Searle, M.R.C.S., L.S.A., died at Totnes, Devon, on Dec. 16th last, in his seventy-fifth year. Mr. Searle was one of the best-known medical men in South Devon, and had practised at Brixham, Devon, for over 40 years, but had retired some years ago. He was formerly medical officer of health for Brixham, and held several other public appointments. Mr. Searle, who was a prominent Freemason, took great interest in all local matters, was at one time chairman of the School Board, and later chairman of the school managers at Brixham.

THE LATE DR. E. T. COX, OF HOVE.—Dr. Ernest Tom Cox, who died on Dec. 21st, 1919, at his residence in Hove, where he had been in practice for more than 25 years, was an Aberdeen medical graduate, taking his M.B., C.M. in 1889, and his M.D. four years later. He practised in association with various colleagues in the Hove district. Among a number of public appointments he was surgeon to the East Sussex Constabulary, and was a captain in the R.A.M.C. (T.). He had held the highest offices in several lodges of Freemasons, was the founder of one lodge and one of the original members of another, and had the distinction of being Provincial Grand Senior Warden in the Sussex Province. His death at 51 years of age will be widely felt in the district.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than* 9 *o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALDERSON, G. C., M.B., B.C., F.R.C.S. Eng., has been appointed Surgeon to the Coventry and Warwickshire Hospital.

BOWES, E. S., L.R.C.P., M.R.C.S., Medical Officer for the Totnes District and Workhouse, by the Totnes (Devon) Board of Guardians.

DOHERTY, M. A., M.B., M.R.C.S., Honorary Assistant Obstetrician to the Elizabeth Garrett-Anderson Hospital Euston-road.

ROSS, E. A., M.D. Cantab., M.R.C.P. Lond., Honorary Clinical Pathologist to the Royal Hampshire County Hospital, Winchester.

SMURTHWAITE, H., M.D., B.S. Durh., Assistant Surgeon to the Gloucestershire Royal Infirmary and Eye Institution.

TYLER, M. F., M.B., Medical Officer for the Dartmouth, Dittisham, and Kingswear District by the Totnes (Devon) Board of Guardians.

WAYLEN, G. H. H., B.Ch. Cantab., L.R.C.P., M.R.C.S., Medical Officer of the Third District and Workhouse Infirmary, by the Devizes (Wilts) Board of Guardians.

WILKINSON, A. G., M.B., Ch.B., D.P.H., D.T.M., Senior Medical Officer in Charge of the Tropical Section, Ministry of Pensions Hospital, Orpington, Kent.

Belfast Infirmary: HILL, T. E., M.B., B.Ch., B.A.O. Dub., House Surgeon; and HALL, R., jun., M.B., B.Ch., B.A.O. Belf., CLEARKIN, J. M., M.B., B.Ch., B.A.O. Belf., and WILSON, G., L.R.C.P. & S., L.M. Irel., House Physicians.

Certifying Surgeons under the Factory and Workshop Acts: TURNER, R. T., M.D. Vict. (Nantwich), WHITEHEAD, B., M.R.C.S., L.R.C.P. Lond. (Downton), JAMESON, J. E., M.B., B.Ch. Dub. (Kingston), CLEGG, E. A., M.R.C.S., L.R.C.P. Lond. (Gosport), SMITH, W. A., M.B., C.M. Aberd. (Darwen).

Vacancies.

For further information refer to the advertisement columns.

Birkenhead Borough Hospital.—Two Hon. Asst. M.O.'s.
Birkenhead Union.—Asst. Res. M.O. £300.
Birmingham, City Fever Hospital, Little Bromwich.—Asst. M.O. £300.
Birmingham General Hospital.—Clin. Path. £600.
Bournemouth, Royal Victoria and West Hants Hospital (Boscombe Branch).—Res. M.O. £200.
Bury Infirmary, Lancs.—Jun. H.S. £150.
Cape Town University, Faculty of Medicine.—Chair of Bio-Chemistry. £800.
Cardiff, King Edward VII. Hospital.—H.S. £200.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.
Central London Throat and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Anæsth.
Charing Cross Hospital, W.C.—Orthop. S., Hon. Anæsth., and Three additional Hon. Anæsths.
Chester City and County.—Asst. M.O.H. £500.
Children's Infirmary, Cleveland-street, W.—Female Asst. M.O. £300.
City of London Union, Institution and Infirmary, 42, Clifden-road, Clapton, E.—Asst. M.O. £300.
Derby, Derbyshire Royal Infirmary.—Cas. O. £150. H.P. £200.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Eastern Dispensary, Leman-street, E.—Ophth. S.
Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.—Sen. M.O.'s. £600 each.
Gold Coast and Sierra Leone.—Dent. S. £500.
Great Northern Central Hospital, Holloway, London, N.—Two P.'s.
Greenwich Union Infirmary, Vanbrugh Hill, East Greenwich, S.E.—Asst. Med. Supt. £300.
Hartlepool Union.—Asst. Res. M.O. £350.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. 30 guineas.
Hospital for Epilepsy and Paralysis and other Diseases of the Nervous System, Maida Vale, W.—Res. M.O. £150.
Hospital for Sick Children, Great Ormond-street, London, W.C.—H.S. £50.
Hospital for Women, Soho-square, W.—Clin. Assts.
Huddersfield County Borough Education Authority.—Asst. Sch. M.O. £475.
Hull Royal Infirmary.—H.P. £200.
Ilford Urban District Council.—Asst. M.O.H. £500.
Italian Hospital, Queen-square, W.C.—Hon. Anæsth. and Hon. Asst. Anæsth.
Lancaster, Royal Albert Institution for the Feeble-Minded.—Asst. M.O. £500.
Leeds General Infirmary.—Hon. Asst. S.
Londonderry County and County Borough Infirmary.—H.S. £250.
Lowestoft Borough.—Female M.O., &c. £500.
Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.
Maidstone, West Kent General Hospital.—H.P. £200.
Manchester, Whitworth Park Hospital.—H.S. £100.
Middlesex County Council, Napsbury Mental Hospital, near St. Albans.—Jun. Asst. M.O. £400.
Miller General Hospital for South-East London, Greenwich-road S.E.—Res. Cas. O. and H.S. £100.
Ministry of Pensions.—Medical Referees.
Natal Provincial Administration—Med. Inspect. and Asst. Med Inspect. of Schools. £800 and £600.
Neath Rural District Council.—M.O.H. £750.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

Northumberland, County of.—School Med. Inspec. £400.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham City Asylum.—Second Asst. M.O. £350.

Nottingham General Hospital.—Cas. H.S. £150.

Paisley, Burgh of.—M.O.H. £600.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. S.

Reeth Union and Rural District Council, Yorkshire.—M.O.H., &c. £95.

Royal College of Surgeons of England.—Election to Court of Examiners.

Royal Free Hospital, Gray's Inn-road, W.C.—Female Res. Obst. O. (£110), Res. Obst. H.S. (£50), Res. Obst. Asst. (£150). Also Surg. Regist. and Clin. Assts.

Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh Gardens, N.W.—Med. Supt. £400.

Sheffield University.—Demonstrator in Path. and Bact.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.S. £100.

Stafford, Staffordshire General Infirmary.—H.P. £200.

Stockport Infirmary.—Jun. Res. M.O. £200.

Straits Settlements.—Res. M.O. £840.

Sunderland Education Committee.—Female Asst. Sch. M.O. and Two Sch. Dent. £450 each.

Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Female Jun. Asst. M.O. £300.

Swindon, Borough of.—Asst. M.O.H. £500.

University of London.—Chair of Path. at Middlesex Hosp. Med. Sch. £800.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. Each £100.

Whittingham County Asylum, Preston, Lancs.—Asst. M.O. £420.

THERE are vacancies in the Mental Hospital Service of the London County Council for Fifth Assistant Medical Officers at Banstead, Cane Hill, and Long Grove Mental Hospitals, and for Sixth Assistant Medical Officers at Banstead, Bexley, Cane Hill, Claybury, Colney Hatch, Hanwell, and Long Grove Mental Hospitals.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Kidwelly, Kirkliston, Lerwick, and Mold.

Births, Marriages, and Deaths.

BIRTHS.

MCGRIGOR.—On Jan. 1st, at Streatham Manor, S.W., the wife of Major D. B. McGrigor, O.B.E., R.A.M.C., of a son.

SEARS.—On Dec. 29th, 1919, at "Point View," Burnt Ash Hill, Lee, S.E., the wife of C. Newton Sears, M.D., B.S. Lond., M.R.C.S., L.R.C.P., of a son.

WARWICK.—On Jan. 1st, at Regent's Park-road, the wife of A. Macgregor Warwick, M.C., M.B., of a daughter.

MARRIAGES.

NICOL—MURRAY.—On Dec. 18th, 1919, at British Embassy Chapel, Constantinople, by the Rev. Lieutenant-Colonel J. L. Findlay, D.S.O., Chalmers Nicol, Major, R.A.S.C., to Mary Dorothea Murray, M.B., Ch.B.

DEATHS.

CROSLAND.—On Dec. 31st, 1919, at New North-road, Huddersfield, Major George William Kilner Crosland, D.S.O., M.R.C.S., L.R.C.P., aged 50.

FRASER.—On Jan. 4th, at Drumsheugh-gardens, Edinburgh, Sir Thomas Richard Fraser, M.D., F.R.S., Emeritus Professor of Materia Medica, University of Edinburgh, Honorary Physician-in-Ordinary to the King in Scotland, aged 78.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

LIPPINCOTT (J. B.) COMPANY, London and Philadelphia.
The Art of Anæsthesia. By P. J. Flagg, M.D. 2nd ed. Pp. 367. 18*s*.

LIVINGSTONE, E. AND S., Edinburgh.
Half a Century of Smallpox (The Milroy Lectures, 1919). By J. C. McVail, M.D. Pp. 87. 5*s*. 6*d*.

LONGMANS, GREEN, AND CO., London.
The Oliver-Sharpey Lectures on the Feeding of Nations. By E. H. Starling, C.M.G., M.D. Pp. 146. 5*s*.

MACLEHOSE, JACKSON, AND CO., Glasgow.
Fractures, Compound Fractures, Dislocations, and their Treatment, with a Section on Amputations and Artificial Limbs. By J. A. C. Macewen, Capt., R.A.M.C. (T.F.). Pp. 285. 12*s*. 6*d*.

ROUTLEDGE, GEORGE, AND SONS, London.
Totem and Taboo. By Prof. S. Freud. Authorised translation by A. A. Brill, M.D. Pp. 268. 10*s*. 6*d*.

SCIENTIFIC PRESS, THE, London.
Change of Life: Its Difficulties and Dangers. By Dr. Mary Scharlieb. Pp. 123. 1*s*. 3*d*.

UNIVERSITY OF LONDON PRESS, LTD., London.
Diseases of Women. By T. G. Stevens, M.D., B.S. 2nd ed. Pp. 443. 20*s*.

UNIVERSITY PRESS, Cambridge and London.
The Transmutation of Bacteria. By S. Gurney-Dixon, M.D. Pp. 180. 10*s*.

WITHERBY AND CO., London.
Meteorology for All. By D. W. Horner, F.R.Met. Soc. Pp. 184. 6*s*.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Jan. 13th.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham) at 5 P.M.
Papers:
Dr. E. W. Scripture: The Nature of Epilepsy.
Dr. H. Crichton Miller: The Rôle of the Endocrines in the Production of Mental Disorder.

Wednesday, Jan. 14th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crookshank): at 5 P.M.
Papers:
Mr. S. P. Vivian: Thomas Campion, Doctor of Phisicke, 1567–1620.
Canon Westlake: The Gild of our Lady of Rouncyval.

Thursday, Jan. 15th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 5 P.M.
Cases: (4.30 P.M.) will be shown by—
Dr. H. W. Barber: Recurrent Ulceration of the Skin, apparently due to a Diphtheroid Bacillus; and others.

Friday, Jan. 16th.

OTOLOGY (Hon. Secretaries—H. Buckland Jones, Lionel Colledge); at 5 P.M.
Short Paper:
Dr. A. A. Gray: A Few Anatomical Details of the Anatomy of the Vestibule, not previously described.
Cases and Specimens will be shown by—
Mr. E. D. D. Davis, Mr. J. S. Fraser and Dr. J. K. Milne Dickie, Mr. Somerville Hastings, Mr. Richard Lake, and others.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 P.M.
Paper:
Mr. C. Thurstan Holland: Lessons of the War.

THE TUBERCULOSIS SOCIETY AND THE ASSOCIATION OF SCHOOL MEDICAL OFFICERS (JOINT MEETING), at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

MONDAY, Jan. 12th.—7.30 P.M., Adjourned Discussion on the Various Aspects of Tuberculosis as Affecting Child Life. Lieut.-Col, F. W. Higgs, C.B.E., Lieut.-Col. Lætitia Fairfield, C.B.E., Dr. Jane Walker, Dr. Watt, and others are expected to take part in the discussion.

RÖNTGEN SOCIETY, at the Royal Photographic Society's House, 35, Russell-square, W.C.

TUESDAY, Jan. 13th.—7 P.M., General Meeting. Discussion on Some Aspects of Radiology and Radiometallography, opened by Major G. W. C. Kaye, O.B.E.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Jan. 16th.—8.30 P.M., Discussion on Bacillary Dysentery, opened by Dr. P. Manson-Bahr.—Paper:—Read for Dr. T. Clarke (Penang): Fleas as the Probable Carriers of Rheumatic Fever.—Read for Dr. F. Roux: Note on the Treatment of Malaria and Blackwater Fever.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.

THURSDAY, Jan. 15th.—4.30 P.M., Lecture II.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

MONDAY, Jan. 12th.—9.15 A.M., Lecture I.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)

WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

SATURDAY.—10.15 A.M., Lecture II., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, Jan. 13th.—4.30 P.M., Opening Address:—Sir Humphry Rolleston, K.C.B.: The Uses and Methods of Application of Post-Graduate Teaching.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Jan. 12th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Hamill: Præcordial Pain.

THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients Dr. Wells.

SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Jan. 15th.—5 P.M., Lecture I.:—Prof. E. W. Hope: Schemes and Methods in Tuberculosis Work.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Jan. 13th.—4.30 P.M., Lecture:—Mr. E. D. Telford: Treatment of Spinal Caries.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Jan. 19th.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. S. A. Kinnier Wilson: Examination of the Nervous System and Interpretation of Physical Signs. I.

TUESDAY, Jan. 20th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

WEDNESDAY, Jan. 21st.—2 P.M., Mr. Scott: Tinnitus aurium. 3.30 P.M. Dr. Greenfield: Pathological Demonstration.

THURSDAY, Jan. 22nd.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. II.

FRIDAY, Jan. 23rd.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Hinds Howell.

SATURDAY, Jan. 24th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £5 5*s*. C. M. HINDS HOWELL, Dean.

Communications, Letters, &c., to the Editor have been received from—

A.—Capt. H. St. A. Agate, Portsmouth.

B.—Messrs. Burroughs Wellcome and Co., Lond.; British Science Guild, Lond., Sec. of; British Medical Association, Victorian Branch, Sec. of; Mr. H. A. Barker, Lond.; Dr. F. A. Bainbridge, Lond.; Mrs. C. Brereton, Lond.; Miss E. Britten, Lond.; British Federation of Medical and Allied Societies, Lond.; Dr. R. D. Batten, Lond.

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I.—*Infinito*, Dumfries, Editor of.

J.—Dr. E. L. Jones, Cambridge.

L.—Messrs. H. K. Lewis and Co., Lond.

M.—Dr. P. Manson-Bahr, Lond.; Medical Research Committee, Lond.; Ministry of Health, Lond.; Dr. O. May, Lond.; Mr. R. Macdonald, Leicester; Prof. C. S. Myers, Lond.; Mr. A. MacDonald, Washington; Dr. C. G. MacVicker, Street.

N.—North-East London Post-Graduate College, Dean of; National Hospital for the Paralysed and Epileptic, Lond., Dean of.

O.—Oxo, Ltd., Lond., Managing Director of; Ophthalmological Society of the United Kingdom, Hon. Sec. of; Mr. D. F. A. O'Brien, Bradford.

P.—Mr. L. Paton, Lond.; Dr. A. Pettit, Paris; *The Prescriber*, Lond., Editor of; Mr. A. C. Perry, Lond.; Miss L. M. Potter, Lond.; Dr. W. A. Potts, Edgbaston; Mr. J. Powell, St. Helier.

Q.—Queen's Hospital for Children, Lond.

R.—Dr. H. M. Rainsford, Lond.; Sir H. D. Rolleston, Lond.; Sir G. A. Reid, Southsea; Dr. J. D. Rolleston, Lond.; Dr. J. W. Rob, Weybridge.

S.—Mr. A. B. Searle, Sheffield; Dr. C. F. Sonntag, Lond.; Société de Biologie, Paris; St. George's Hospital, Lond., Secretary-Superintendent of; Society for the State Registration of Trained Nurses, Lond., Hon. Sec. of; "Special Reserve."

T.—Dr. W. H. M. Telling, Leeds; Dr. W. R. M. Turtle, Lond.; Dr. A. H. Thompson, Lond.; Dr. W. W. D. Thomson, Belfast; Dr. H. Townsend-Whitling, Market Harborough.

U.—Under-Secretary of State for the Colonies, Lond.

W.—Sir C. G. Watson, Lond.; Dr. E. Watt, Edinburgh; Dr. F. P. Weber, Lond.; Dr. W. McC. Wanklyn.

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THE MEDICAL PROFESSION AND THE PEERAGE.

BY S. D. CLIPPINGDALE, M.D.

Sir Bertrand Dawson's elevation to the peerage lends interest to the question how far the medical profession and the peerage have hitherto been associated by either actual grant or direct descent. A glance over the authorities reveals the following instances, no claim being implied that the list is complete.

Addington (*Sidmouth*).—The first Viscount Sidmouth, Speaker of the House of Commons in the time of George III., was son of Dr. Henry Addington, of Upper Ottery, co. Devon.

Alexander (*Burgh*).—Dr. Reginald Gervaise Alexander succeeded on July 20th, 1919, in establishing to the satisfaction of the House of Lords his claim to be co-heir to the ancient barony of Burgh, created in 1437, his claim to be co-heir also to the dormant baronies of Cobham and Strabolgi being reserved for future consideration.

Barwick (*Sherbourne*).—The only daughter and heiress of Dr. Peter Barwick, physician to Charles I. and Charles II., and one of the few doctors who remained in London during the Great Plague, by marrying Sir Ralph Dutton of Sherbourne became ancestress of the Duttons, Barons Sherbourne.

Bickersteth (*Langdale*).—Henry Bickersteth, son of a surgeon practising in Kirkby Lonsdale, was himself first a physician (M.D. Camb.), then a lawyer. Rising in the latter capacity to the position of Master of the Rolls, he, in 1836, was created Baron Langdale. This peerage is now extinct.

Bray (*Braye*).—Sir Richard Bray, said to have been physician to Henry VI., and who lies interred at Worcester Cathedral, was grandfather of Sir Edmund Bray, summoned to Parliament as Baron Bray, 21 Henry VIII., ancestor of the present Lords Braye of Eaton Braye.

Dalrymple (*Stair*).—The Hon. Thomas Dalrymple, M.D., physician in Scotland to King William and Queen Mary, was son of the first Viscount Stair.

De Fernham (*Durham*).—Nicholas de Fernham, physician to Henry III., becoming weary of Court life, retired, and, being an ecclesiastic, was made Bishop of Durham.

Denman (*Denman*).—Baron Denman, of Dovedale, Lord Chief Justice of England from 1832 to 1850, was the son of an eminent obstetric physician, Dr. Thomas Denman.

Douglas (*Glenbervie*).—Sylvester Douglas, who studied medicine at Aberdeen and afterwards practised as an apothecary, exchanged physics for politics, and, becoming eminent as a diplomatist, was, in 1800, raised to the Irish Peerage by the title of Baron Glenbervie, on which occasion Sheridan wrote:—

> "Glenbervie, Glenbervie!
> What's good for the scurvy?
> Let your old trade ne'er be forgot,
> For arms you should quarter
> A pestle and mortar,
> And for crest take a spruce gallipot."[1]

Fairfax (*Fairfax of Cameron*).—John Contée Fairfax, M.D. of Fairfax County, Virginia, a large landed proprietor, wa eleventh Baron Fairfax of Cameron in the Peerage o Scotland, a 1627 creation.

Finlay (*Finlay*).—Sir Robert Bannatyne Finlay graduate in medicine at Edinburgh University before his call to th Bar in 1867. He became Lord Chancellor in 1916, with barony for his lifetime.

Foster (*Ilkeston*).—The Right Honourable Sir Walter Foster M.D., was in 1910 created Baron Ilkeston of Ilkeston, in th county of Derby.

Holland (*Knutsford*).—The eldest son of Sir Henry Holland Bart., Physician to Queen Victoria, was, in 1895, create Viscount Knutsford.

Howard (*Wicklow*).—Dr. Ralph Howard, President of th Royal College of Physicians, Ireland, in 1674, acquired fron the Duke of Ormonde the estate of North Arklow, co Wicklow. This estate was confiscated by James II., bu restored by William III., and the doctor's grandson create Viscount Wicklow and Baron Clonmore.

James (*James of Hereford*).—The late Baron James o Hereford was the son of Mr. Philip Turner James, surgeon of Hereford.

Lister (*Lister*).—The great surgeon was raised to th peerage as Baron Lister of Lyme Regis, in the county Dorset, Feb. 6th, 1897. He left no heir to the barony.

Lister (*Ribblesdale*).—The Listers, Barons Ribblesdale, ca claim for their pedigree three notable medical men, D

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[1] Moore's Life of Sheridan.

Edward Lister, physician to Queen Elizabeth ; Sir Mathew Lister, physician to James I.; and Dr. Martin Lister, physician to Queen Anne.

Morley (*Morley of Blackburn*).—Viscount Morley of Blackburn is the son of Mr. Jonathan Morley, surgeon, of Blackburn.

Pemberton (*Kingsdown*).—Edward Pemberton, M.D., of Warrington, was grandfather of the first Baron Kingsdown, a peerage now extinct.

Playfair (*Playfair*).—The first Baron Playfair, of St. Andrews, in the county of Fife, so created in 1892, was the son of Dr. George Playfair, Inspector-General of Hospitals, Bengal.

Primrose (*Rosebery*).—The Earl of Rosebery, Hon. F.R.C.S. Eng. and Edin., is the lineal descendant of Gilbert Primrose, or Prymross, surgeon to James I. and VI., and first President of the Royal College of Surgeons, Edinburgh. At the recent tercentenary celebration of the college Lord Rosebery, who attended, exhibited the pestle and mortar which had belonged to his medical ancestor.

Petty (*Shelburne*), *Petty* (*Lansdowne*).—Sir William Petty, who was physician to Charles I., and whose wife was created Baroness Shelburne, had two sons, who became first and second Barons Shelburne respectively. They died, however, without issue. Sir William's daughter and heiress married Thomas Fitzmaurice, Earl of Kerry, and so created the Petty-Fitzmaurice family, of which the present Marquis of Lansdowne (Sir Charles Petty-Fitzmaurice) is the representative. Concerning this marriage a cynical member of the family said that the doctor's daughter brought into it "whatever degree of sense may have appeared in it and whatever wealth is likely to remain in it."

Sanders (*Melville*), *Sanders* (*Westmorland*).—Dr. Richard Huck Sanders, physician to the forces in the reign of George III., left two daughters, co-heiresses of his wealth. The elder of these ladies married the second Viscount Melville and became ancestress of the succeeding Viscounts Melville. The younger lady became the second wife of the tenth Earl of Westmorland, whose honours, however, descended to the issue of his first wife.

Singe-Hamilton (*Abinger*).—The Honourable Mrs. Singe-Hamilton, M.D., the first lady member of the peerage to become a member of the medical profession, is a daughter of the third Baron Abinger.

Sloane (*Cadogan*).—Sir Hans Sloane's daughter married the second Baron Cadogan, to whom she conveyed the Manor of Chelsea, purchased by her father as a result of his successful practice.

Smithson (*Northumberland*).—Sir Hugh Smithson, Bart., who had practised as an apothecary in Hatton Garden, having married the Percy heiress was created, in 1749, Earl, and, in 1766, Duke of Northumberland.

Somerville (*Somerville*).—Dr. William Somerville, husband (and cousin) of Mary Somerville, the talented authoress, and physician to Chelsea Hospital, was directly descended from the Barons Somerville of Cambusnethan, ennobled as early as 1442.

In addition to these, Dr. Bathust, physician to Oliver Cromwell, and Sir William Waldegrave, physician to James II., are known to have been members of the Bathust and Waldegrave peerage families, respectively, but their position in the pedigrees of those families is not clear.

THE NEW DISABLEMENT PENSIONS.

A FURTHER report of the Select Committee on Pensions issued on the last day of 1919 (H.M. Stat. Office, price 3*d.*), suggests a generous increase in the scale of disablement pensions for officers and for the dependents of both officers and men.

The recommendation contained in the first report of the Select Committee (July 28th, 1919) that soldiers' pensions should, like sailors', be awarded as a statutory right and not by way of bounty was accepted by the Government, and is embodied in the War Pensions Act of 1919. The exclusion of widows and dependents from the statutory recognition, since found to be a hardship, will be made good if the recommendation contained in the present report is put in force.

The War Office, the Admiralty, and the Air Ministry have recently issued new Orders improving the rates of service retired pay. The present report reconsiders the provisions for disability in the light of these new regulations. Officers who have already served in the war and retired prior to September, 1919, are given the benefit of the new rates. The new service rates professedly allow for the increased cost of living, and are to be subject to revision after five years to an extent not exceeding 20 per cent., and thereafter at intervals of three years.

The report proceeds :—

> The natural basis to take for officers qualified for service retired pay is the new scales of such retired pay. But these scales only apply in the case of the Army to those with 15 years' service, and in the case of the Navy and Air Force to those who are 40 years of age and over. For officers not so qualified we propose to take as a basis: (i.) for the Army and Air Force, £200 for a Lieutenant-Colonel, £170 for a Major, and for Captains and Subalterns a graduated scale graded down from £140 for 14 years' service, and with a minimum of £120 for a Captain and £70 for a Lieutenant and 2nd Lieutenant; and (ii.) for Lieutenants and Lieutenant-Commanders of the Navy the new invaliding scale varying with service in the rank laid down in the Admiralty Order.
>
> There is no provision in the Admiralty Order either for Sub-Lieutenants or for Commanders of the Royal Navy. To meet the difficulty we recommend that £70 be the scale for the Sub-Lieutenant, thus placing him on an equality with the Lieutenant of the Army, to whom he corresponds in rank, and for the Commander the new invaliding scale applicable to Lieutenant-Commanders with increments of £10 for each year of service on the date of promotion to Lieutenant-Commander and a flat-rate addition of £50 for rank.
>
> As to the addition to be made for disablement, the present addition is £100 for 100 per cent. disablement ; but to this at present must be added the 20 per cent. war bonus reckoned on the temporary officers' scales, which amount to £35 for 100 per cent. disablement in the case of a Captain or Subaltern, £45 in the case of a Major, and £50 in the case of a Lieutenant-Colonel. So far as the retired pay element is concerned, bonus may now be regarded as included in the new basic scales. But so far as the disablement element is concerned, it is necessary to augment this, and we recommend an increase of the present scale by 50 per cent., making it £150 for 100 per cent. disablement, and that a proportionate addition be made for the lower grades.
>
> The new Army rates of half-pay show a very great increase, and we recommend that for regular officers of the Army these rates, without any additions, should be accepted as minimum rates for disability. They will be liable to adjustment after five years, and should be limited to the substantive rank held by the officer at the time of his retirement.

The result of the foregoing recommendations will be to make the disablement pensions to be awarded to regular officers as shown in the following table:—

TABLE A.—ARMY.

Rank.	Total service.	Service in rank.	Present.	Proposed.
I.—*100 per cent. Disablement.*				
			£	£
2nd Lieut....	4	4	210	220
Lieut.	9	7	235	240
Captain ...	6	2	263	270
,, ...	15	3	295	300
Major	10	2	300	320
,, ...	18	2	300	369
,, ...	21	5	300	450
Lt.-Col. ...	23	2	350	600
II.—*60 per cent. Disablement.*				
2nd Lieut....	4	4	136	160
Lieut.	9	7	181	181
Captain ...	6	2	209	214†
,, ...	15	3	241	241
Major	10	2	260	287†
,, ...	18	2	277	309
,, ...	21	5	287	390
Lt.-Col. ...	23	2	310	540
III.—*30 per cent. Disablement.*				
2nd Lieut....	4	4	95	118†
Lieut.	9	7	140	173†
Captain ...	6	2	167	214†
,, ...	15	3	200	238†
Major	10	2	216	287†
,, ...	18	2	233	287†
,, ...	21	5	243	345
Lt.-Col. ...	23	2	290	495

TABLE B.—NAVY.

Rank.	Total service.	Service in rank.	Present.	Proposed.
I.—*100 per cent. Disablement.*				
			£	£
Sub-Lieut.	3	3	210	220
Lieut.	7	5	245	300
Lt.-Comr. (age 34)	14	3	300	360
Lt.-Comr. (age 42)	21	10	425	570
Commander (age 34)	14	3*	328	410
Commander (age 42)	21	7	430	570
II.—*50 per cent. Disablement.*				
Sub-Lieut.	3	3	144	160
Lieut.	7	5	191	240
Lt.-Comr. (age 34)	14	3	242	300
Lt.-Comr. (age 42)	21	10	367	510
Commander (age 34)	14	3*	273	365†
Commander (age 42)	21	7	370	510
III.—*30 per cent. Disablement.*				
Sub-Lieut.	3	3	103	115
Lieut.	7	5	150	195
Lt.-Comr. (age 34)	14	3	198	292†
Lt.-Comr. (age 42)	21	10	323	465
Commander (age 34)	14	3*	225	365†
Commander (age 42)	21	7	325	465

* Includes service as Lieutenant-Commander. † Half-pay rates.

The rates for temporary officers disabled in the late war work out in the case of 100 per cent. disablement at amounts varying from £210 for the 2nd Lieutenant to £300 for the Lieutenant-Colonel.

In regard to disability and deaths as a result of earlier campaigns, the report accepts the principle that those disabled in previous wars and their dependents, both officers and men, should, if already in receipt of disablement pension or allowance, receive the benefit of all the improved rates granted to officers and men and their dependents in the present war.

BOOKS OF REFERENCE.

THE fifty-second annual issue of *Whitaker* (1920. 12, Warwick-lane, London. Pp. 1020. 6*s.*) reverts to the more complete enumeration of facts and figures which characterised it in the pre-war days ; the Service lists again appear, and statistics which would have given information to the enemy are reintroduced. New Government departments are also to be found in this volume, and the Ministry of Health receives liberal treatment in the way of reference. At this time of day there is no need to describe the contents of *Whitaker*, but mention may be made of a new section dealing with "Questions of the Day" and of special articles devoted to sport, workmen's compensation, meteorology, women's work, aviation and science and invention, and an improved and extended section on banking. For the rest the book is still the indispensable work of reference it has always been.

The *New Hazell Annual and Almanack, 1920* (Edited by T. A. Ingram, LL.D. London: Henry Frowde and Hodder and Stoughton. Pp. 940. Price 6*s*.), is another book which, on account of its utility, finds a place in every office and library, containing the most recent and authoritative information concerning the British Empire, the nations of the world, and the important topics of the day. Among the new features of the present issue are the articles on the peace treaties with Germany, Austria, and Bulgaria, which are fully dealt with, while the text of the Covenant of the League of Nations is set out in full, as well as Labour's Charter under the League. The article on Pensions and Separation Allowances treats the subjects very fully. Scientific and industrial research also receive attention, and among the maps which illustrate the *Annual* are two showing the new Germany and the new Austria.

LONGEVITY.

IN the *Evening News* (London) of Dec. 29th, 1919, there appears a reproduction of a tablet on a wall of the parish church of Shifnal, Salop, showing two instances of extraordinary longevity. The first name on the tablet is that of William Wakley, who was born on May 1st, 1590, and was buried on Nov. 28th, 1714, being therefore 124 years of age. The date and place of his baptism and burial appear to have been verified. This William Wakley was believed by the late Mr. Thomas Wakley, senior, to have been his grandfather's grandfather, and the dates make the theory just possible, crediting William and the two succeeding generations with unusual prolongation of vigour. The Thomas Wakley who founded THE LANCET was born in 1795, his father, Henry, of Membury, having been born in 1750.

THE POSITION OF BRITISH BUTTER.

DAIRY products include butter and cheese (and rarely milk-sugar), and the starting-point of all is, of course, milk. In the time of plentiful supplies or of an excessive output the manufacture of these products is an economically sound proceeding, though we cannot understand why the milk-sugar is seldom recovered but lost in the whey, though it is the most abundant solid constituent of milk, the proportions being—milk-sugar 5 to 6 per cent., casein (cheese) 3·3 per cent., and fat (cheese and butter) 3·5 to 4 per cent. With a shortage of milk and high prices ruling the raw material in its entirety goes to the consumer, and British cheese and butter-making are for the time in abeyance. That is why no butter has been made in this country for some time, and what little butter is available for distribution comes from sources beyond these shores. So long as milk remains at its present inflated price the dairy industry will discard the making of solid milk products, unless a very high price is offered for them. Imported butter is still controlled and rationed, and these regulations are to be continued, but British butter is to be relieved from control in February. With milk realising a price of 3*s*. 3*d*. per gallon to the producer, the chances are that when the restriction in regard to the supply of British butter is withdrawn its price may mount to anything.

PUBLIC HEALTH AT GIBRALTAR IN 1918.

THE total civil population of Gibraltar is estimated to be 17,963, of whom 14,511 dwell in "the city," giving a density of 139 persons per acre in this area. The density of population in London, within the area dealt with by the Registrar-General, was in 1911 at the rate of 60·43 per acre. The borough of Bethnal Green had a density of 173 per acre. Gibraltar, therefore, though extremely crowded, is not in a worse condition in this respect than some town populations in our own country. But about 10,000 aliens and 1500 British residents in La Linea (the nearest point in Spain, about half a mile to the north across the neutral ground) come into the city daily for the purposes of their employment. As regards infectious diseases, the total number of cases was 159. Of enteric fever there were 31 cases and 3 deaths and of measles 25 cases and 2 deaths. The total zymotic death-rate only amounted to 0·455 per 1000. Colonel G. Dansey-Browning, C.B.E., A.M.S., who presents the report, as medical officer of health, draws special attention to the incidence of pulmonary tuberculosis, of which there were 39 cases with 37 deaths. The cases were more numerous than in either of the three preceding years, and the number of deaths greater than in any year of the decennium (1909–1918). He considers the figures to be very unsatisfactory, and to show that the marked improvement which coincided with better housing in the last decade has not been maintained. The administrative measures adopted in regard to this disease are admirable. Each case notified is inquired into, the needful precautions in regard to infection are explained, assistance given if necessary, both in the way of food, &c., and by accommodation of the patient at the tuberculosis home, or by treatment at the dispensary. The average monthly number of patients attending the dispensary was 49, and the average monthly number of visits paid to the patients' homes was 40; while five families have been provided with free quarters at the home, and 75 families assisted with food, and with money if needed. Of the 31 enteric cases, 9 had probably contracted infection in Spain, 7 from contact with persons suffering from the disease in Gibraltar, 2 from eating shell-fish, and 3 from drinking polluted water. The alien water-seller, from whom these last-mentioned cases had been infected, happened to meet with an accident, and on admission to hospital was found to be suffering from ambulatory typhoid. All water-sellers now have to be examined and licensed. There was an entire absence of Mediterranean fever amongst the civil population for the first time since 1908; one soldier developed the disease three weeks after drinking brandy diluted with goat's milk whilst on pass in Spain. Since 1906 no goats have been allowed to be imported unless they are proved to have come from a non-infected herd, and all milk imported from Spain is boiled before being sold. Gibraltar suffered from two epidemics of influenza in 1918; these form the subject of a special report. The first outbreak lasted from the latter half of May to the beginning of July—that is, during the hot, dry weather—and was of a mild character; 8 deaths were recorded from influenza and 13 from pneumonia—21 in all. Colonel Dansey-Browning considers that the actual number of cases cannot have been less than 800. The second epidemic, from the beginning of September to the end of November, was much more severe; there were 76 deaths from influenza and 36 from pneumonia — 112 in all. Toxæmia, with or without albuminuria, was a frequent symptom; the actual number of cases is estimated to have been 6000—"that is to say, over 30 per cent. of the total civil population suffered in some form or other from influenza in 1918." Isolation, free ventilation, and disinfection were found to be effectual in checking spread. In the second period it became necessary to prohibit indoor public assemblies and wakes, and to restrict funeral ceremonies in churches. Colonel Dansey-Browning's report is very concise, and fully illustrated by tables of statistics in detail. It is evident that the greatest watchfulness is maintained over the sanitation of the fortress and city, and the health of the civil and military population.

THE TOXICITY OF WOOD ALCOHOL.

THE remarkable toxic properties of wood alcohol (methyl alcohol), referred to in our issue last week, claim wider attention, and there appears to be considerable misconception as to what wood alcohol really is. At all events, pure wood alcohol (CH_3OH) is not readily accessible to the public; in its more or less pure form it is used as a solvent for waxes and varnishes by the chemical manufacturer, by the analytical chemist, and by the microscopist in the preparation of certain aniline stains. Methylated spirit as we know it, and as it is employed in spirit lamps, is not wood alcohol, but a mixture of ordinary alcohol (ethyl) with an addition of 10 per cent. wood alcohol and a small quantity of mineral naphtha (light paraffin oil). The presence of the oil is shown on adding water to the spirit when it turns milky through separation of the oil. It is thus called "mineralised" or "denaturalised," but still contains about 90 per cent. of alcohol (ethyl) or rectified spirit, the chief factor of potable spirit. It is not usually the case that the lowest member of an homologous series is more toxic than its higher molecular relatives. Propyl alcohol (C_3H_7OH), for example, is more powerful than ethyl (C_2H_5OH), butyl (C_4H_9OH) than propyl, and amyl ($C_5H_{11}OH$) than any of them, and so the toxicity advances as CH_2 is added. According to Cushny, the symptoms of wood alcohol poisoning in man differ from those of ordinary spirits in the marked muscular weakness and defective cardiac action, which are followed by nausea, vomiting, coma, or delirium of a much more intense and persistent character than those seen in intoxication with ethyl alcohol. In a considerable number of cases the same observer records that death has followed from a single dose smaller than would have been fatal had ethyl alcohol been taken, and in some cases total and permanent blindness has followed or accompanied recovery. It is suggested that while ethyl alcohol undergoes complete combustion in the tissues, methyl alcohol is oxidised to formic acid and possibly to formic aldehyde, both of which are much more poisonous than the original alcohol. This explanation is plausible, so that the intense toxicity of methyl alcohol compared with that of ethyl alcohol may be due to incomplete combustion, just as poisonous carbon monoxide is given off by an imperfectly working fire or stove.

An Address

ON THE

APPLICATION OF WAR METHODS TO CIVIL PRACTICE.

Delivered before the Clinical Section of the Royal Society of Medicine on Jan. 9th, 1920,

BY SIR ANTHONY BOWLBY, K.C.B., K.C.M.G., K.C.V.O.,

SURGEON-IN-ORDINARY TO H.M. THE KING, ETC.

GENTLEMEN,—My absence from England when our session opened prevented me from acknowledging earlier my appreciation of your kindness in electing me to be your President, and I gladly do so now. I have always kept in mind during the war the question of the ultimate utilisation in civil surgery of that vast experience of wounds which can only be supplied by a great war; and I think that, while this is yet fresh in our minds, we should test some of those methods which thousands of British surgeons have learnt in various parts of the world.

"SHOCK" AND ITS PREVENTION.

It will be universally acknowledged that the first and most striking danger to the man wounded in war is "shock," and this condition is met with in a far higher percentage of men wounded in war than in those correspondingly injured in the occupations of peace. The reasons for this are sufficiently obvious, for the man injured in the workshop or the factory or on the railroad is not suffering from want of sleep or want of food and of water. He is not unduly exhausted by physical strain or by mental excitement, and when he is injured help is at hand quickly. The man injured in war is frequently suffering from some or all of these causes of exhaustion, and he is often thoroughly chilled after his injury through lying out in cold, wet, or even freezing weather. The shock of the soldier is, as a result, often quite out of proportion to the severity of his wounds, and is consequently not to be estimated accurately as true "wound shock" until these other factors have been eliminated by appropriate treatment. Unless this is kept in mind, it becomes exceedingly difficult to estimate the true value of remedial measures, for it will be found in war that complete rest, plenty of hot drinks, and plenty of warmth will in thousands of cases restore in a comparatively few hours men who were cold and pulseless on admission to hospital. I have always been convinced that the most important of all the remedies for shock is warmth, and that nothing takes its place. When this was appreciated, and when every casualty clearing station had arrangements for warming men by the introduction of hot air under the blankets, the majority of the badly shocked men went to sleep after a good drink and recovered with surprising rapidity.

It must be constantly kept in mind that the injury inflicted by rough transport may be as potent a cause of true wound shock as was the original gunshot wound itself, and it is therefore obvious that if this statement is as true as I believe it to be much of the wound shock can be obviated by sufficient care: first, in the early application of suitable splints, which should be employed in all severe injuries and not reserved for fracture cases alone; and secondly, by the supply of well-hung and well-warmed ambulance-cars.

It was partly by such simple and accessible methods as these that the condition of the wounded man was so greatly improved during the war, and it will be by the application in civil life of the knowledge we have gained that a like improvement will be obtained in peace.

Splints and ambulances.—I have been myself so convinced of the importance of care in the transport of injured men that, with the aid of the Army Medical Service and of the British Red Cross Society, I have arranged for the equipment with suitable splints of the motor ambulances which have been supplied to various parts of Great Britain, and arrangements are now being made to see that the ambulance drivers and orderlies are as thoroughly trained in the use of the "Thomas outfit" for fractured extremities as were our orderlies at the front in France. It is quite easy to train men who have no surgical knowledge at all so that they shall provisionally put up a fractured leg or thigh much better than the best surgeon could have done it before the war, and I believe that one result of what our experience has taught us is that in every country arrangements should be made to teach how badly wounded men may be taken even for great distances without further injury being inflicted upon them by the transit.

THE TREATMENT OF SHOCK.

So much for prevention of shock, but, as far as treatment is concerned, the practical deduction which is to be drawn from a consideration of our present knowledge of shock is that, isasmuch as the principal phenomena are loss of blood volume and fall of blood pressure, the obvious aim should be to restore these.

The treatment by rest, warmth, and taking of fluids is indicated in all cases, whatever more may be required, and morphia in moderate doses will be useful in allaying pain, anxiety, and excitement, and so encouraging sleep. In many cases nothing more is needed. The simplest method of increasing the blood volume is to administer fluids by the mouth, and as all soldiers in battle areas have only limited supplies of water to drink it should be accepted as an axiom that all wounded men always require drink as soon as they arrive at an aid-post or field ambulance.

Unfortunately, many patients with really severe shock are quite unable to keep down any fluid, and in that case rectal injections are often most useful. I believe it is true that both blood pressure and blood volume are more likely to remain permanently improved by gastric or rectal absorption of fluid than by the intravenous administration of the same quantity. It seems clear that the direct addition of fluids to the venous blood is not so good as the making of blood serum by the patient himself from fluid absorbed through a mucous membrane, but in many cases of severe shock, and in view of the fact that delay may mean disaster, it is often necessary to perform intravenous infusion as soon as the patient has been warmed and rested. We have learnt that normal saline solution is useless for this purpose, but it is the opinion of most observers (and it is mine) that Bayliss's solution of 6 per cent. gum arabic in normal saline is often of the greatest benefit in raising the blood pressure for long enough to carry the patient over the danger period.

In proportion as the shock conditions are due to excessive bleeding immediate infusion of blood is better than gum solution, and is undoubtedly indicated: not less than a pint should be introduced. There is no doubt that many lives were saved by this practice, and there is also no doubt that it was not until the surgeons of the United States Army joined the British casualty clearing stations in 1917, before Passchendaele, that blood transfusion became common. Its employment was subsequently utilised yet farther forward, and great benefit ensued when prepared citrated blood was sent up to the field ambulances when a battle was impending during the advance of the Allies in 1918, as it could safely be kept for from 12 to 18 hours or more before use. I would suggest that in future sterilised gum solution should be kept ready for use by operating surgeons and by all civil hospitals, and also that test sera for donors of blood should be regularly stocked, so that no delay may arise in the choice of a donor, for if such treatment is necessary at all it is certain that there will be no time to waste, as the experience of war has shown that if blood is transfused too late it is quite useless.

ANÆSTHETICS.

But if we have learnt much that is valuable about shock and its prevention and treatment, we must realise that after the patient had been pulled through with difficulty it was often necessary to operate as soon as possible and before sepsis had appeared upon the scene; so that no sooner had the patient been saved from the shock of his original injury than he was obliged to run the risk of operation shock. Still, where limbs were hopelessly shattered, or main vessels were torn, or the abdomen was shot through, &c., there was no choice left to the surgeon, who also knew that in many cases the rapid removal of a smashed limb resulted in great relief of symptoms. But operation generally meant anæsthetics, and here we were destined to learn a great deal that was new to us.

The Choice of an Anæsthetic.

With regard to the choice of an anæsthetic agent it may be conceded at once that for all slight operations on patients in good condition "open ether" was very often quite satisfactory. But when in wintry or wet weather very many of the wounded were already suffering from a bronchial catarrh ether was very liable to cause grave pulmonary complications, and it was not until we introduced the "Shipway apparatus" for warming the ether vapour that it could be safely administered in such cases. I would very strongly advocate that in the future warm ether vapour should be systematically employed as the better routine method where ether is used in civil practice, for it is not only less irritating to the lungs, it is also much less liable to cause severe vomiting. But in cases of shock neither chloroform nor ether is safe, for a careful record of blood pressure in operations during shock by Major Geoffrey Marshall showed conclusively that after the use of these anæsthetics, although the blood pressure might be high when the operation was finished, this was soon followed by a reactionary fall and death.

And not only is ether not a safe anæsthetic in shock, it is also very injurious if, as is so often the case, it causes nausea and sickness in men who need every ounce of fluid nourishment that can be given, for this sickness, if continued for some hours, will destroy the last chance of recovery for the shocked man.

Much had been expected from the intrathecal use of stovaine, but the sudden fall of blood pressure it caused proved it to be very dangerous to shocked men, and not so good as novocaine. Local anæsthesia was so tedious that it was not possible to use it as a routine method where patients were numerous. It was very useful in selected cases. There remained nitrous oxide and oxygen. The value of this agent in shock had been conclusively proved by Marshall in 1916, and his observations showed that under its influence extensive operations could be performed without any immediate or subsequent fall of blood pressure. Its use saved many lives, and in abdominal operations the very best results of all were obtained by combining it with infiltrative anæsthesia of the abdominal wall. By this combined method the gas and oxygen required was reduced to a minimum and the operator was not troubled by abdominal rigidity. It was by the use of this combination that Majors D. Taylor and G. Marshall at "Remy siding" succeeded in saving 74 patients in a consecutive series of 101 operations for perforating wounds of the abdomen, and I believe that these results were amongst the best obtained in the British Army during the war.

Very much more might be said of war anæsthesia did time permit, but I would urge that gas and oxygen should be supplied, together with suitable apparatus for all the Army Medical Services of the future, and I would also press upon your attention the value of warm ether vapour in the prevention of pulmonary complications.

May I add further that I believe that the combination of gas and oxygen with local anæsthesia is the very best anæsthetic agent for a number of the abdominal operations of civil life and for many others also, for it causes no fall of blood pressure, it eliminates anæsthetic shock, and it abolishes post-anæsthetic vomiting and all its attendant troubles. It must, however, be remembered that it is not always a satisfactory anæsthetic for vigorous and muscular people on whom a prolonged operation is to be done, and that its lengthy administration requires both experience and special apparatus.

THE TREATMENT OF PATIENTS WITH FRACTURES.

Let me ask you now to direct your attention for a few minutes to the treatment of fractures, for I think it is the opinion of all surgeons that here there have been great developments. For example, compound fractures of the femur are now treated infinitely better than before the war.

I will briefly sum up the position by saying that the fractures in France in the last half of the war were treated by "extension and suspension," so that the circulation, nourishment, and mobility of the injured limb were maintained throughout as far as possible. Constriction by bandages has been reduced to a minimum, and limbs are no longer encased in wooden boxes or in plaster-of-Paris, and, as a result of the precautions to maintain in this way the vitality of the limb, wasting of muscles and stiffness of joints have been largely prevented.

It is greatly to be hoped that our war experiences will be utilised at home, and that all hospitals and medical schools will arrange for a much more systematic teaching of how to deal with fractured limbs, so that all young surgeons will in future realise that the so-called "setting" of the fracture should be really only the beginning and not the end of surgical treatment. And if this aim is to be achieved it will be necessary that some at least of the fracture cases in general hospitals shall be collected in "special fracture wards" equipped with the necessary apparatus for "extension and suspension," and supplied also with a mobile X ray outfit, for there are many cases where a good result can only be obtained by frequent radiography at the bedside.

Let it be fully realised that so long as the principles I have sketched are kept in view the details of how best to carry them into practice must be left to the skill and ingenuity of individual surgeons.

WOUND INFECTIONS AND ANTISEPTICS.

Throughout the war experience of wound infection was on a larger scale than had been anticipated, and I will only touch on one or two of the more obvious features of this great subject. It is already widely known that tetanus was prevented by prophylactic injections so successfully that its incidence immediately fell 90 per cent, as soon as the anti-toxin could be supplied in sufficient quantities, but it must be appreciated that if success is to be obtained in civil practice the injections should be given within a few hours of injury. Unfortunately we had no similar success in the employment of prophylactic injections for "gas gangrene," and even at the end of the war the most recently manufactured sera were of doubtful value. At first we found no real remedy. Time and experience alone led us to the proper treatment by excision of all devitalised tissue and the careful and thorough mechanical cleansing of the wound; and it was during this period of learning and experimenting that "antiseptics" were given so thorough a trial and were proved to be so valueless when placed in grossly contaminated tissues.

The uselessness of attempting to sterilise a grossly infected wound by the single application of a powerful chemical agent is really nothing new, and my friend Sir George Makins pointed out in his Hunterian oration that Lister himself was quite aware of this, for he wrote, "If for example a pair of forceps is handed to the operator with the intervals between the teeth occupied by dry septic pus, and a portion of this dirt becomes detached and left in the wound, the evil cannot be corrected by any antiseptic wash that is now at our disposal or that the world is ever likely to see." Very striking words! In spite of this dictum, however, some of Lister's admirers in England urged us in France to try to sterilise wounds by the early introduction of powerful antiseptic agents, and with the natural result that such measures were tried and absolutely failed.

Suture of wounds.—I have already said that the only real method of sterilising the wounds of war, as we saw them in France, was by a suitable operation and the mechanical removal of all that might do harm, so that no tissue which is too badly damaged is left. The next question we had to decide was how to treat such a wound subsequently, and, as you are well aware, the answer was ultimately found in the closure of the wound by either "primary" or "delayed primary suture."

And we also learnt both that the results of suture were not materially influenced by the use of any antiseptic agent, and also that wounds could heal well and firmly even though they contained considerable numbers of micro-organisms, so long as the latter did not include virulent streptococci.

It was evident that the tissue cells could destroy the less virulent bacteria, provided that the latter were surrounded by healthy living tissues, and that by closure of the wound the advent of fresh infection was effectually prevented. The presence of bacteria of very various kinds in wounds which nevertheless did well was recorded by observers of every nationality, and especially in the United States units by Crile, Kenneth Taylor, and H. Cabot; and in the British units by Forbes Fraser, Adrian Stokes, McNee, and the workers in Almroth Wright's laboratory. In almost all regions of the body we closed wounds successfully, either by primary or secondary suture; in the head and neck, the limbs, the chest, the abdomen, and the large joints, and we soon learnt by experience that if patients could not be retained at the front after suffering from extensive wounds it was better to send them to the general hospitals with a packing of gauze, and let the wound be sutured without further interference after arrival. We found no advantage in using antiseptic substances with this packing, although many surgeons did employ flavine or solutions of the bismuth, iodoform, and paraffin paste suggested by Rutherford Morison.

Much more might well be said as to details of treatment in different regions of the body, but the results obtained in the later stages of the war may be briefly summed up saying that not only were many lives and limbs saved by wound closure, but that compound fractures healed more rapidly and with much less necrosis, joints were saved from acute arthritis, suppuration of wounds became rare, septic infection with its fever and emaciation diminished, and convalescence was infinitely more rapid. From the army point of view fewer beds were occupied, nurses and surgeons were spared much unnecessary work, and many soldiers were returned to their units fit and well within a few weeks instead of suffering for months from suppuration.

WAR METHODS IN CIVIL PRACTICE.

Surely it is evident that much of what we have learnt is applicable to civil practice. Is it not certain that we shall close open wounds of the knee, that drainage-tubes will be much less employed, and that "delayed primary suture" will become a common method for the treatment of bad compound fractures and the lacerated wounds caused by machine accidents? The same method of wound closure by delayed suture will be found just as useful in amputations through tissues near to suppurating areas. We found it most helpful in the treatment of Syme's amputation, and Colonel Elder, when consulting surgeon at Rouen, showed me a very striking series of successful amputations by Syme's method performed upon natives of India for gangrene following frost-bite, and treated by suture after being packed with gauze for three or four days. I believe that there is a wide field for the application of war methods to the treatment of the injuries of civil life, but I would emphasise that in suturing wounds after the interval of a day or two it is essential for success that no further wound toilet is permissible. The packing should merely be removed as gently as possible and the sutures inserted and tied.

Secondary infections of wounds.—Our experiences of the value of closure of wounds very naturally directed our attention to the question—How did the wounds become infected by pyogenic organisms? We found that not more than 15 per cent. of recent wounds were infected by hæmolytic streptococci when examined in the operating theatres of the casualty clearing stations at the front; but we were told by our bacteriologists at the different bases that within a week of arrival over 90 per cent. were infected; and shortly before the war ended we appointed an Anglo-American Committee to investigate the whole question of streptococcal infection. Of course, it was evident that when wounded were numbered by the thousand it was not possible to ensure complete sterilisation of hands and instruments after each case had been examined or dressed, but it did appear to be very clear that, as instruments are more easily sterilised than hands, it was very desirable not to touch the wound or the dressings except with instruments, for we had no doubt that wounds usually became contaminated when they were dressed. It was then decided that an investigation should be made in order to ascertain whether many of the medical officers, nurses, or orderlies at the bases were acting as "carriers," and 8000 examinations were made (in the American Army) of their throats, with the result that it was reported at the last meeting of the Committee that "carriers" of hæmolytic streptococci had been found in different bases to number from 15 to 25 per cent. of all the hospital personnel. Here, unfortunately, the matter had to be left, for the war had ended, and the streams of wounded men had, happily, ceased to flow.

It is, of course, not to be supposed that carriers of streptococci are to be found in civil life in any such numbers as those I have mentioned; but experience of the general hospitals in France does show the danger of wound infection spreading when large numbers of streptococcal-infected wounds are accumulated in war conditions; and, what is most important, it explains why it was that the closure of wounds by suture was of such great benefit to the wounded soldier. I would also suggest that the investigations we began are worth pursuing in hospital wards given over to the treatment of cellulitis and erysipelas, and that, in the interests of both staffs and patients, this should be done.

Suppurating wounds.—There remains the question of the treatment of suppurating wounds, and here we have learnt two things: first, that it is more often possible to suture them than we had previously thought; and, second, that Carrel's method is often a very great improvement on the drainage-tube and the daily syringing.

With regard to the first, we found in France that very many wounds could be successfully sutured even if they were suppurating. Secondly, with regard to Carrel's method of treating suppurating wounds, there is no doubt at all that it has marked a very great advance. It supplies a thoroughly scientific and carefully thought out technique, and has been proved to be of the utmost value in the hands of many of the best French and Belgian surgeons, as well as in British hospitals. I have seen admirable results from its careful employment, and I believe that where surgeons have had an unsatisfactory experience this has been largely due to an imperfect technique, for in many hands it has given admirable results in stopping sepsis and suppuration, and in enabling granulating wounds to be closed by secondary suture.

It is difficult to decide the rather academic question as to whether the method owes its success to the hyperchlorous solution of Carrel and Dakin or to the method of irrigation, but I think myself that the method is more important than the particular solution. Here, again, we have learnt much that is useful in the treatment of the suppurations of civil surgery, for Carrel's method is not only valuable in the wounds of war, it is quite as efficacious in the treatment of an empyema or pelvic suppuration. I have seen most excellent results from its use in large appendix abscesses on the one hand, or in suppurating joints on the other, and I am convinced that it has supplied to the operating surgeon a valuable addition to his armament.

CONCLUSION.

In conclusion, I cannot doubt that in the future the civilian surgeon will also work even more with the bacteriologist than he did before the war, for it has been by collaboration and experiment that many of our advances have been maintained without risk to our patients. And, whatever we may have learnt, there is inevitably much more to learn in the near future. Let us all keep this in mind, and let us also remember that, as far as details are concerned, a too rigid standardisation may be harmful. The only safe attitude is that we should be always inclined to believe that however good a method may be it is always possible to evolve another which may be better still.

I have endeavoured to point out to you in what I have said that the surgery of the immediate future may well be expected to benefit from our recent experiences; that we should improve our transport service and our first-aid for the wounded in civil life; that shock can be better treated and can often be prevented; that anæsthesia can be rendered safer; that no antiseptic can at once sterilise infected wounds; that in delayed suture we have an important advance in surgical technique, and that suppurating wounds can be treated by improved methods. You are all well aware that were I able to consider in detail the surgery of the various regions, such as the head, the chest, the abdomen, &c., I should be able to record very many examples of advances in surgery, but this is not the occasion for such a discussion, and I am content to deal only with more general principles.

Bradshaw Lecture

ON

THE SURGERY OF THE HEART.

Delivered before the Royal College of Surgeons of England on Dec. 11th, 1919,

BY SIR CHARLES BALLANCE, K.C.M.G., C.B., M.V.O., M.S. LOND., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL, ETC.

(Concluded from p. 79.)

PART III.

INFECTION THE CRUCIAL FACTOR IN HEART WOUNDS.

SEPTIC pericarditis and septic pleurisy are the two most fatal complications of heart wounds. Here, as elsewhere, fulminating infections are met with in which surgery is at present powerless to arrest a fatal termination. Apart from these the most urgent question is, What treatment should be carried out? How can the cavity of the pericardium be efficiently drained, or should it be closed without drainage?

In the peritoneum experience has shown that the most extensive drainage is ineffective and harmful, and that the copious irrigations formerly carried it tend to spread rather than check the disease. urther, that the peritoneum can deal with a rtain amount of infective material when once e source of sepsis is removed, and that drainage no longer always necessary. In the pleura the me holds true, and the removal of a metal fragent and the complete cleansing of the cavity with uze may be followed by suture of the wound and e daily aspiration of any fluid that accumulates ll a cure is effected. The pericardium differs from e pleura and peritoneum in that it cannot be mpletely inspected and cleansed even if the apex nd ventricles are pulled forward so as to expose e mouth of the oblique sinus.

We may take it that the pericardium is widely pen in front right down to the level of the iaphragm; that the patient is reclining in the upine position, with the chest and head well propped p with pillows; and, further, that he cannot lie on is face or on either side, for these positions cause istress, pain, and dyspnœa. This position—the emi-Fowler position—seems perfect for allowing e fluid collecting on the diaphragmatic surface of e sac to flow out and not remain for any time ithin it. From a close study of the case I operated n, Dr. White and I were early convinced that we ad not succeeded in a satisfactory surgical manner draining the pericardium of our patient.

THE DRAINAGE OF THE SINUS BEHIND THE LEFT AURICLE.

The subject of the surgery of the heart has been o extensively reviewed in numerous papers of reat merit, that as I became acquainted with the terature of the subject I began to doubt whether here was anything new for me to contribute to the iscussion of this important topic. Let me mention s examples three papers. Sir John Bland-Sutton[1] ontributed a paper on "The Treatment of Injuries f the Heart" in 1910. Sir William Thorburn[2] in he same year published a paper on "Cardiolysis," nd in 1909 appeared Matas's[3] (New Orleans) dmirable essay on "The Surgery of the Heart." I ropose, therefore, to confine myself to pointing out practical detail in the treatment of suppurative ericarditis—namely, the drainage of the sinus or ursa behind the left auricle.

Anatomy.

The pericardium is conical in shape, attached by ts base to the diaphragm, while the upper and arrower part surrounds the great vessels. It is upported in front by the ligaments of Luschka, ehind by the ligaments of Béraud, and below by he phreno-pericardial ligaments. From base to ummit it measures from 12 to 14 cm. The ibrous layer is a dense, unyielding, fibrous membrane. The serous membrane has a visceral nd parietal layer; both are in close contact in ealth, and only sufficient fluid is present to acilitate movement. The sudden effusion of "200 o 250 g. (7 to 10 oz.) of liquid, as in hæmorrhage into he pericardium, is sufficient to arrest the heart's ction by compression, while in chronic distension he fibrous layer will gradually give way and 500 to 2000 g. (17 to 60 oz.) of fluid may collect in the sac without causing death."[4]

The reflections of the serous membrane on to the great vessels cause the formation of pouches or recesses. The most important recess, and the one which I want to direct your most particular attention to, is situated behind the left auricle. It is described by French anatomists as the cul-de-sac of Haller, in English works as the oblique sinus, and by Professor Keith as the bursa of the left auricle. It extends upwards between the right and left pulmonary veins and arteries to the upper border of the left auricle. It is 4 to 5 cm. in depth and behind it is the œsophagus. The vestigial fold of the pericardium forms a small pouch which leads into the oblique sinus. The vestigial fold is a doubling of the serous membrane between the left pulmonary artery and vein and contains the remains of the left superior cava. This smaller pouch or diverticulum of the oblique sinus is also behind the left auricle. The large pouch[5] (bursa of Keith) is blind at its upper extremity; it extends obliquely upwards and towards the right as far as the superior cava. The lower end is widely open below at the level of the groove on the posterior surface of the heart between the left auricle and ventricle. The right border of the opening is on a lower level than the left and reaches down as far as the inferior vena cava. The opening therefore faces downwards, forwards, and towards the left. The lateral borders or surfaces of the pericardium are in contact with the lungs, are in constant movement, and are not much under tension. When fluid collects in the pericardium it accumulates mainly in the two postero-lateral pouches of the pericardium on each side of the middle partition formed by the projection of the superior and inferior cavæ and right auricle; and in the dome-shaped space above. The heart cannot move backwards, but its apex and ventricles are crowded forward by the fluid which has accumulated in the postero-lateral pouches, always approaching the chest wall more closely as the tension of the pent-up fluid increases. I made this observation in my case when the pericardium was freely opened and the fluid quickly escaped; the apex of the heart sank down and shut off from the rest of the cavity the recess behind the left auricle; and the failure to drain this recess properly was, I believe, a cardinal factor in the fatal termination of the case. We have to picture to ourselves not a distended pericardium but a cavity freely opened in front, with the cul-de-sac of Haller undrained because the position of the heart blocks the exit of fluid from it. I studied this problem in my patient day and night for three and a half weeks, and its solution is, I believe, of vital importance in the treatment of septic pericarditis.

I distended the pericardium of a young adult cadaver with about 7 oz. of liquid gelatin, the thorax being in the erect position. When the gelatin had set, the apex of the heart was separated only by 3 mm. of gelatin from the front of the distended pericardium, while the base was covered with gelatin 2 cm. (¾ m.) thick. In a distended pericardium the apex of the heart is carried forwards, and the contents of the oblique sinus can escape, but with the emptying of the pericardium the ventricles and apex drop backwards and shut off the oblique sinus from the rest of the pericardial cavity. I made an incision in the left lateral wall of the distended pericardium opposite the mouth of the oblique sinus, and passed

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[1] Brit. Med. Jour., May 28th, 1910. [2] Ibid., Jan. 1st.
[3] Keen's Surgery, 1909.
[4] Poirier and Charpy, 3rd edit., T. 2, Fasc. 2, p. 152; and Testut, th edit., vol. ii., p. 71.

[5] In a formalined prepared body in which the left auricle was contracted, the pouch of Haller held more than 1 oz. of water. Under normal living circumstances the pouch of Haller is only a potential space (see Braune's plates).

a large blunt-ended metal probe through it and through the gelatin in the oblique sinus as far as it would go with gentle pressure. The probe disappeared for 4¾ in.

Illustrative Cases.

The two cases following offer a striking contrast: (1) Delbet's case, which ran an aseptic course; (2) my case, which is a typical example of acute suppuration within the pericardium.

Removal of bullet wound from heart; recovery. Paul Delbet's case (1917).[6]—An infantryman, aged 31 years, was wounded on April 16th, 1917, near Craonne, by grenade splinters in the right side of the thorax posteriorly, also in the right arm and forearm. He became confused, and then lost consciousness for about 20 minutes. From the dressing station he was sent to the nearest field hospital, where he remained several days. The wounds in the upper limb were treated, and fragments of clothing were removed from the wound in the thorax. The case was not considered grave, and no X ray examination was made at that time. He reached Paris on May 2nd. His face was then wax-coloured, respiration was frequent and shallow, and the slightest exertion caused dyspnœa. Temperature 104°F., pulse 120. Behind and to the right, three finger's breadth from the median line, was a suppurating wound 3 cm. long, where a grenade fragment had entered; there was no wound of exit. There was congestion of lower lobe of lung on both sides and the area of cardiac dullness was considerably increased. Radiography showed a foreign body within the heart shadow, a little to the right of the median line 6½ cm. from the level of the sixth costal cartilage. By the stereoscopic method it was shown to be in the right side of the heart.

Operation (June 26th) 70 days after the injury. An osteoplastic flap with base outwards (Delorme's method) was turned back. The mediastinal fat and cellular tissue were displaced; in doing this a small opening in the pleura was made and was closed with forceps. The pericardium was picked up with forceps and incised; it was closely adherent all over. The adhesions were separated with the finger, first on the left and then on the right side. A foreign body was felt in the middle of the right ventricle. The heart could not be held in the gloved hand, from which it slipped like a live fish; glove removed and heart seized with the left hand and rotated a little towards the right; an incision 3 cm. long was made in the right ventricle, the foreign body seized with forceps and removed. The wound in the ventricle was closed with three No. 2 catgut sutures. Pericardium and external wound sutured. The foreign body was a fragment of steel, irregularly cubical in shape, 1½ cm. in diameter.

The patient was well in 12 days, and was shown in Paris in September, 1917, in good health.

Removal of a rifle bullet from the right ventricle of the heart[7] *by White and Ballance.*—Trooper M., aged 21, was wounded by a bullet on Nov. 14th, 1917. He rode some miles to the nearest dressing station and then collapsed. On examination it was found that the bullet had passed through the upper part of the right arm behind the humerus, and then entered the right chest between the fourth and fifth ribs and had not emerged. A radiogram taken the next day showed the bullet 2 in. from the surface in the cardiac region on a level with the inferior border of the heart; the bullet moved with the cardiac pulsations. It was thought to be in the wall of the left ventricle near the anterior margin. There was some fluid at the base of the right pleura. Patient admitted to St. Elmo Hospital, Malta, from Salonika on Jan. 13th, 1918, as a cot case.

On admission general condition good. While lying down pulse 96, steady and regular; on exertion, such as getting out of bed or picking up an object off the floor from the bed, the pulse became irregular and rapid. He was once allowed to cross the ward, when the pulse rose to 130 and the face became pale. The other clinical findings were all negative, except for a small goitre, which had been present for years. The patient came from Derbyshire. Repeated X ray examinations, both with the screen and by means of stereoscopic plates, were made. These showed movement of diaphragm independent of the bullet. The bullet lay behind the left fifth cartilage and left fifth intercostal space ¾ in. from the left border of the sternum and about 2 in. deep from the skin surface in front. The base of the bullet lay towards the right, while the pointed end was directed towards the left and somewhat downwards, and moved more than the base with the pulsations of the heart. It was thought that the base of the bullet was fixed in the wall of the right ventricle, and that the pointed end was in the cavity of the right ventricle.

The patient had suffered severely from sea-sickness during the voyage from Salonika, and this had caused much distress from palpitation and choking sensations. Further, the rapidity and irregularity of the heart on the slightest exertion and the known position of the bullet made it desirable to perform an exploratory operation in order to determine whether it was possible to remove the bullet. The patient had remained in bed under observation without improvement.

Operation (Feb. 16th, 1918).—The Delorme-Kocher incision for exposure of the heart was made and the fourth, fifth, and sixth costal cartilages of the left side were removed. The internal mammary artery was tied in two places and divided between the ligatures. The triangularis sterni was divided, and the border of the left pleura, crossing obliquely the front of the pericardium, was seen and thereafter held aside. No injury to the pleura occurred. The anterior surface of the pericardium appeared normal except for a small, puckered scar half an inch from the left border of the sternum about the level of the fourth space. An incision was made in the pericardium passing obliquely downwards and towards the left, and as long as the resection of the chest wall allowed. A very little gas and frothy fluid escaped, but no adhesions between the parietal and visceral layer of the pericardium were found. The anterior surface of the heart appeared normal both to sight and touch. One of us (W.) then palpated the posterior surface of the heart and at once felt the bullet through the wall of the right ventricle near the apex. Fixation stitches of No. 1 silk were then passed close to the apex of the heart along the anterior interventricular groove. These threads were used to pull the apex of the heart forwards and upwards; a first-rate exposure of the posterior surface was thus obtained. On the posterior aspect of the heart no scar was visible and no bulging was seen. Palpation determined that the bullet was lying near the apex of the heart on the right side of the posterior inter-ventricular groove, and was apparently in the ventricle. Four silk stitches were next inserted in the wall of the right ventricle along the line of the proposed incision; they passed twice through the muscle, so that the loop could be drawn out of the way while the incision was being made. One of us (B.) then seized the heart with the left hand, using the thumb to compress the right ventricle above the line of the proposed incision. It was found difficult to cut the quickly contracting heart muscle with the knife, so the incision into the ventricle was completed with scissors. B. then introduced a pair of artery forceps into the cavity of the right ventricle through the incision, seized the free extremity of the bullet and pulled it outside the heart. In doing so the inner surface of the ventricular wall was everted, exposing the columnæ carneæ, because the base of the bullet was firmly embedded and attached to this surface. W. then, with a knife, cut the inner aspect of the ventricular wall and the bullet was free. The hæmorrhage was fairly profuse, but was at once controlled by pulling on the stitches which had already been passed, and by putting in four more, so as to invert, Lembert-like, the outer wall of the ventricle. The manipulation at no time affected the work of the heart, and the pulse only failed momentarily when blood was escaping from the heart. There was no visible sign of inflammation or sepsis. Some saline solution was left in the pericardium and the incision stitched up. The superficial incision was also closed and the patient returned to bed without shock. Colour good, respiration 20, pulse 110. Throughout the operation the blood pressure was carefully noted. The subsequent history after the first few days was that of progressive sepsis, with free discharge from the wound, and although the patient was carefully tended he died on March 14th.

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[6] From Delorme's paper in Bull. de l'Acad. de Méd., 1917, p. 243.

[7] Journal of the R.A.M.C., December, 1918.

Autopsy.—Wide gaping wound in præcordial region; large opening in pericardium; considerable area of anterior aspect of heart exposed. Petechial hæmorrhages subcutaneously and over some of the viscera. The thoracic viscera were taken away entire and preserved in 10 per cent. formalin for further examination. After fixation, both lungs normal. No enlarged glands in hilum of either lung or in mediastinum; the latter was normal. Œsophagus, trachea, and main bronchi normal. The right lobe of the thyroid extended downwards to the bifurcation of the trachea. This enlargement and extension downwards of the right lobe of the thyroid pressed the trachea towards the left, giving it a definite curve in that direction. At the back of the right lobe of the thyroid was a cyst 1½ in. in diameter containing pus; below the cyst was more thyroid tissue. The thoracic lobe was 2½ in. long by 1½ in. wide and was circular on horizontal section. On section numerous cysts were seen, many of which contained pus. In part the interstitial tissue contained calcareous matter. The pericardium was opened from behind. It was lined by a thick adventitious membrane; the visceral layer was everywhere intact but thickened, and some petechial hæmorrhages were seen. The line of incision at the back of the right ventricle was not visible, but two or three puckers on the surface of the heart gave some indication of the site of operation. The operation incision had healed. Microscopic sections through the site of incision in the ventricular wall showed the line of incision occupied by young connective tissue and evidence of pus at the surface; other sections showed encapsulation of ligature and changes in the cardiac muscle near the incision.

Remarks.

While the operation was carried out in many respects on the ordinary principles of surgery, treating the heart muscle like any other tissue of the body, the after-treatment was not in its early stages so conducted. When the patient became ill, instead of treating the case on ordinary principles and opening the lines of incision, we were absorbed in dreams and idle speculations, one of which was that clot was forming on the wound in the interior of the right ventricle, and that its extension was embarrassing the action of the heart. It is a common experience that bullets frequently lodge in the tissue and induce neither local nor general infection until attempts at removal are made. The total absence of adhesions or any visible sign of inflammation in the pericardium and heart led us to close the wound in the pericardium, which was a fatal mistake. Further, on opening the pericardium, we had observed a little gas and frothy fluid which, notwithstanding all the other appearances, must have been pathological, so that looking back we may affirm that there was no valid excuse for closing the pericardium. As a matter of fact, the pericardium and superficial wound should have been left widely open as if the operation had been done for suppurative pericarditis. The question of possible sepsis was ignored, and, further, in order not to leave any air in the pericardium, which might have caused surgical emphysema, normal saline solution was left within it, and we believe that this must have embarrassed the heart and promoted sepsis.

In the course of the case it appeared reasonable to assume that an abscess might form in the posterior mediastinum. We found by experiment on a cadaver that the removal of about 2 in. of the sixth and seventh ribs commencing 2 in. from the spines of the vertebræ enabled us to reflect the parietal pleura without injury or difficulty and to enter the mediastinum. In this subject the posterior surface of the undistended pericardium was 5 in. from the skin surface of the back.

Before operation we obtained bullets of different nations to see whether a magnet would be useful in removing the bullet from the patient. It was probable, indeed certain, that the bullet lodged in the patient was projected from a Bulgarian rifle, as the only prisoners taken in the action in which this soldier was wounded were Bulgarians. The modern Bulgarian bullet tested by us was not magnetic, while the modern Serbian bullet proved strongly magnetic. We therefore did not have in the theatre the powerful electro-magnet made for us by the Royal Engineers. After removal the bullet proved to be an old Bulgarian bullet and was strongly magnetic.

It was impossible to drain the pericardium by placing the patient in the prone position, as the heart then immediately blocked the exit from that cavity; besides, the distress of the patient was insupportable. At one time we thought that an abscess was forming in the posterior mediastinum because of intermittent discharge of pus from the left side of the posterior part of the cavity; this portion being inaccessible to visual examination, we could not judge what was going on there, as we could in all other regions of the pericardium. Indeed, we almost hoped that an empyema would form in the left pleura, because then it would have been possible to drain the empyema, and at the same time to make an incision in the pericardium far back on the left side. We were familiar with a case of suppurative pericarditis, complicated with left empyema, in which this operation was done, and the patient recovered.[8] But in this heart case no empyema occurred and no extension to the mediastinum; indeed, the thick strong wall of the pericardium could not easily or quickly give way to softening or perforation by the action of pus not under pressure. The local treatment consisted in discontinuous or continuous irrigation with normal saline solution or eusol. When a jug of fluid was slowly poured into the pericardium the sac would soon appear quite clean, the pus having been washed away. It was constantly found, however, that pus kept welling up from the region behind the left side of the heart either continuously or in gushes. The phenomenon was constant, and it was certain that it came from a cavity or pouch in the left postero-inferior region of the pericardium, or from a cavity outside the pericardium which intermittently discharged its contents into the pericardium. We felt that for successful treatment this pouch must be drained by incision of the posterior or left lateral wall of the pericardium. The use of a small red rubber catheter pushed from the right side behind the heart (as we thought into the pocket) did very little or nothing to control these gushes of pus. The tube was kept in place for days behind the heart and continuous and discontinuous irrigation was employed; no disturbance of the heart's action was produced.

The examination of the pericardial pus showed the presence of *Streptococcus pyogenes*, *Staphylococcus aureus*, and a long thin bacillus, which was gas-producing and which Major Russell could not identify. In the effort to check the sepsis we resorted to intravenous injections of perchloride of mercury solution and also to transfusion of blood.

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[8] See also case by Steward and Garrod, R. Soc. of Med., 1907.

The patient became very anæmic towards the end. The red blood count was only 1,500,000. Bazett's apparatus was used for transfusion. The blood was allowed to flow for 5½ minutes; the operation was continued till the blood pressure of the donor fell to 90. Next day Major Russell estimated that 2 out of every 3 red corpuscles in the patient's blood had come from the donor.

SOME FURTHER REMARKS ON THE OPERATION AND THE PROPOSAL TO DRAIN THE CUL-DE-SAC OF HALLER.

A. In an urgent case the surgeon must operate without being certain of the diagnosis. The operation is done to obviate impending death, and all else is secondary. There will be the wound, the signs of hæmorrhage, and the increase in præcordial dullness; but whether the general state of the patient is due to a wound of the heart, or of one of the great vessels, or of the root of the lung, or of the internal mammary, or the intercostal artery cannot be determined before operation. In my case I had the opportunity of observing the effect produced by the filling of the pericardium with fluid under tension. "Then breathing became laboured and shallow, the extremities cold, there was free perspiration, great thirst, and much pain in the left side of the chest. During the night the patient was very restless, the face and limbs cyanotic, and the pulse very feeble." When fluid finds no outlet from the pericardium as illustrated in this case the "Herz-tamponade" begins, and is indicated by the signs of venous retardation caused by compression of the auricles. During a coughing fit on the following morning a large quantity of clear fluid escaped from the pericardium. The patient collapsed and became unconscious and pulseless. He revived in half an hour under the vigorous use of restoratives, then asked for his breakfast; pulse strong, 90, breathing deep and easy, all pain gone. After breakfast he slept quietly for three hours, and on waking up expressed himself as being well; the blood pressure was 120.

Signs and symptoms.—In purulent pericarditis the upper segments of both recti may be rigid, and there may be a narrow band of œdema round the front and left side of the trunk about the level of the fifth interspace. I have seen this band of œdema and I have known suppurative pericarditis mistaken for inflammation below the diaphragm. Absence of diaphragmatic movement is indicative of pus in contact with the diaphragm.[9] In pericarditis with effusion the right lobe of the liver is low; in dilatation of the heart the right lobe of the liver is not depressed.[10] Moog reports a case in which he tapped a much-distended pericardium through the fifth space in front and through the eighth space behind. This is important, for Mackenzie reports having tapped a purulent pericardial effusion from the back in mistake for an empyema.[11] Many observers have found a small area of dullness in the left back just inside the angle of the scapula. This was discovered by Sir A. Garrod in my case, and being associated with slight difficulty in swallowing was thought at first to indicate a collection of pus in the posterior mediastinum. The early diagnosis of purulent pericarditis is greatly assisted by X ray examination and by the blood count record. These should never be omitted.

B. Contrary to Delbet's experience, I found no difficulty in holding the heart with the gloved hand; the heart was said to wriggle out of Delbet's gloved hand like a live fish. My success in holding the heart was, I believe, due to the fact that the apex was drawn forward by fixation stitches, which assisted to control all movements except the pulsations. In any future operation on the heart I should certainly place a fixation stitch or stitches through the apex as a preliminary measure.

In suturing a wound of the heart fine vaselined silk and small round needles should be employed No salt solution should be left in the pericardia sac; it should be gently dried with gauze. In profuse suppurative pericarditis the edges of the pericardial wound should be stitched to the skin.

In young children as a complication of pneumonia or empyema suppurative pericarditis is not uncommon, and with the pericarditis there is sometimes a septic gelatinous-spreading mediastinitis In children especially I think it is advisable to stitch the opening in the pericardium to the skin in the hope that mediastinitis will be prevented Every case of suppurative pericarditis which is no drained must end fatally. There are strong advocates for and against pericardial drainage. I refer particularly to cases of gunshot wound of the heart or pericardium. It would seem that in many such cases drainage is a mistake. Statistics do no really help—e.g., one writer quotes the following:—

Pericardium and pleura closed in 30 cases; 2 recovered.

Pericardium and pleura drained in 43 cases; 2 recovered.

These figures are not of decisive significance, fo each case must be decided as far as drainage i concerned on its own merits. No two cases ar alike. It is from the study of individual cases tha the right treatment will be evolved.

C. *Drainage of the cul-de-sac of Haller.*—Certai cases of suppurative pericarditis recover wit simple drainage through the anterior wound; ther are others that do not, and it is in these tha drainage of the cul-de-sac of Haller must be con sidered. The tube cannot be introduced into thi pouch by passing it under the heart from the lef side; it might, indeed, not even lie in the mouth c the sac, but remain between the heart and th diaphragm. The same thing is true of any attemp to introduce a tube into the pouch by passing i between the left border of the heart and the inne surface of the left lateral wall of the pericardiun because these are in close apposition and drainag would probably be no better than if the tube wer carried under the heart, and, further, because th operator would be directing the tube backward while the long axis of the pouch is in the vertica direction.

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[9] Porter (Annals of Surgery, 1900, p. 769) analysed a large number of cases of suppurative pericarditis. The operation mortality was 60 per cent. The amount of pus evacuated varied from 10 oz. to 2 quarts. Rhodes (Annals of Surgery, 1915, p. 660), in a paper on Suppurative Pericarditis, adds 13 cases to those of Roberts, 1897 (35 cases); Porter, 1900 (16 cases); and Eliot, 1909 (22 cases); making a total of 86 cases. He voices the opinion that aspiration is dangerous and that X-ray examination and the blood count are of great value. Davis (Surgical Clinics of Chicago, 1917, p. 375) relates a successful case of suppurative pericarditis treated by operation. He refers to Février's 9 cases treated by aspiration, all of which were fatal. (Contrib. à la Chir. du pericarde and paracentèse et pericardiotomie, Bull. gén. de Thérap., 1889, cxvi.) He says the mortality of incision is 45 to 50 per cent.; and that the position of the right border of the left pleura is so variable that no accurate idea of its relation to the pericardium is possible.

[10] Calvert: Jour. Amer. Med. Assoc., 1910.

[11] See paper by Robey, Amer. Jour. Med. Sci., April, 1917.

In my opinion, the only satisfactory way of draining the pouch of Haller is by making an opening in the left lateral wall of the pericardium opposite the mouth of the pouch. In order to do this there are obvious advantages in the adoption of the Spangaro operation.

In most cases the tube will lie inside the pleura in its course to the surface and should be packed round with gauze, but if the pleura and lung are not wounded it might be possible to strip back the pleura and push back the lung from the lateral boundary of the pericardium, making the incision in the proper place in the pericardium without opening the pleura.

In reading the records of cases of suppurative pericarditis one is struck with the almost universal difficulty experienced in maintaining drainage. Take, for example, the case of Hilsmann[12] that recovered. A free incision into the pericardium was made in the fourth space. Two pints of pus came out, and much more escaped during the next few hours. During the after-treatment the patient had to bend over, so that his chest was in the position it would have been if he had been standing on his head, in order to empty the pericardium. This manœuvre would cause the ventricles to move forward, and thus the mouth of the cul-de-sac of Haller would be opened.

Again, a fatal case[13] is recorded in which, though a half-pint of thin greenish pus was evacuated through an anterior pericardiotomy, yet at the post-mortem an abscess cavity was found behind and to the left of the heart within the pericardium.

Lastly, cases of purulent pericarditis with left empyema, in which the pericardial wall has been incised through the empyema opening, seem to have a better chance of recovery than those drained through an anterior pericardiotomy. The presence of pus pent up in the cul-de-sac of Haller, quite independently of the effect of sepsis, must interfere seriously with the function of the left auricle.

CONCLUSION.

I am well aware that the suggestion I have made that in certain cases of purulent infection of the pericardium the cul-de-sac of Haller should be drained is not founded on the actual successful performance of the operation, but I venture to maintain that such an operation is justified on the anatomical and pathological considerations which I have endeavoured to set before you.

I do not doubt that the surgery of the heart will occupy in the coming time a conspicuous place in surgical practice. The reward of success will attend our efforts in so far as the heart is treated as one of the ordinary tissues of the body and the method of operation conforms to the fundamental principles of surgery.

What developments in this field of surgery may take place we cannot know. It is best to be content with the present splendour and not to be impatient to paint yet more glorious triumphs on the cloud curtain of the future.

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[12] Ueber die Paracentese des Pericardiums, Kiel, 1875, Inaug. Dissert. This is one of the 51 cases described by Porter in the Annals of Surgery, 1900.

[13] Coutts and Rowlands: Brit. Med. Jour., Jan. 2nd, 1904. Pericardium exposed by removing the left fifth cartilage and nibbling away a bit of the adjoining cartilaginous sternum. Half a pint of thin greenish pus escaped on incising pericardium. Death three months later. Autopsy: Besides other lesions an encapsuled abscess containing 3 oz. of pus was found. The cavity lay behind and to the left of the heart and within the pericardial sac. The original anterior pericardial wound was not quite closed. It led to a small pocket of pus in front of the heart.

TREATMENT OF
MALUNION IN FRACTURES OF THE FEMUR.

BY W. ETHERINGTON WILSON, M.R.C.S. L.R.C.P. LOND.,
MEDICAL OFFICER, I/C FEMUR WARDS, 1ST LONDON GENERAL HOSPITAL.

Introduction by

SIR ANTHONY BOWLBY, K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. ENG.,
TEMP. MAJOR-GENERAL, A.M.S.

SOON after the armistice was signed in November, 1918, British soldiers who had been wounded and taken prisoners to Germany began to arrive at our base hospitals in France. Amongst them were a considerable number of fractures of the femur, many of which I saw and examined. Without exception the condition of all these fractures was so extremely bad that they excited universal comment and condemnation, and caused me to inquire into the method or methods of treatment which they obtained behind the German lines.

I had long been aware that many of the Germans had looked upon a soldier with a fractured thigh as a useless encumbrance and hardly worth treating; as long ago as November, 1914, they had deliberately left such a man to die in Ploegsteert Wood, and on three other separate occasions I had personally known men brought by our soldiers into our "C.C.S.'s" who had been refused removal by German stretcher-bearers, stripped of their tunics and equipment, and left on the ground in their shirts. I had also seen some of our prisoners exchanged two years ago as useless on account of fractures of the thigh with gross deformity and shortening, who were returned to England because German surgeons looked upon them as too bad for any surgeon to cure. Yet a large percentage of them recovered with good limbs after appropriate surgical treatment in England. I was therefore quite prepared to find that the results obtained by German surgeons in general were very bad, and, I must add, that, as far as I could ascertain, their own soldiers and ours were treated by the same methods.

The ignorance of the essential principles of treatment must have been very widely spread if one may judge from the similarity of the results from different parts of Germany.

The following was the routine method:—

When picked up the patient was placed upon a stretcher without any extemporised splint, such as a rifle, and was then transferred to an evacuation hospital 10 to 20 miles to the rear. No attempt was made here to operate under an anæsthetic, and dressings often remained unchanged for several days at a time.

In most of the cases the limb was splinted at this stage, but the only splint usually employed was a trough-shaped wire splint without a foot-piece. I have seen many of these, and they were so frail as to be of little use. As no extension was applied, the limb rolled out with the weight of the foot and shortened to a variable extent.

In this splint the patient remained and was transported farther back. The wounds were generally dressed every second day. After the lapse of about two or three weeks the wire splint was commonly removed and the injured limb was enclosed in plaster-of-Paris, which was taken up over the pelvis as far as the nipples. During these two or three weeks more and more shortening had taken place, and the malposition was now rendered permanent by the plaster case. The wound was still dressed every two or three days through a "window" cut in the splint. After a further period of about two months the plaster case was removed and no other splint treatment was adopted. Sores caused by splint pressure and by vermin were the rule. After this stage had been reached the patient was either left in bed, if too ill to move, or was allowed to get about on crutches. If union of the fracture was materially delayed amputation was frequently resorted to.

Such is a bare outline of the methods adopted in the case of British prisoners who have been restored to our hospitals, and such, I believe, was the routine treatment of German wounded also. No improvement of methods was discoverable even at the end of the war.

I think that perhaps the most remarkable fact is that "extension," which has been the routine method in most countries for over 40 years, was practically never employed, but I should add that at Cologne one "professor" did employ it in the most primitive and barbarous manner in the chief hospital for prisoners in that town. This method was as follows:—

First, an incision was made two inches behind the anterior superior iliac spine, and then the bone was perforated and a steel hook put through the ilium and brought out above the iliac crest. To this hook a cord was attached, and at the other end of the cord two bricks were slung over the head of the bed. Another steel hook was fixed to the tibia below the tubercle, and to this a cord was attached and two other bricks were slung over the foot of the bed. A whole ward of 30 British patients were thus treated in Cologne until the "professor" died and his colleagues abandoned the method. All hook wounds suppurated and were, as a rule, still suppurating when the survivors arrived in France.

How many of the British prisoners with fractured thighs lost their limbs by amputation and how many died we have no means of knowing, but the evidence of the survivors shows that both these results were of frequent occurrence. The whole story is very discreditable as far as the German surgeon is concerned, but, fortunately, the results obtained in England by operations on the shortened and deformed limbs go a long way to make amends.

Treatment of Malunion in Fractures of the Femur.

By W. ETHERINGTON WILSON.

Repatriated prisoners of war from Germany have supplied most of the cases of our series in which osteotomy has been done. Other sources have also produced their quota of crooked thighs. These cases are interesting, for they show the results of the ignorant and vicious methods practised by the German, causing hideous and awful crippling which by present-day methods are avoidable. Major M. Sinclair, in THE LANCET of March 29th, 1919, drew attention to these facts.

The results following osteotomy as done by Mr. Harold Wilson, M.S., F.R.C.S., have been excellent and amply justify the operative technique employed.

The after-treatment of the cases in the femur wards follows the teaching of Major Sinclair, whose inventive and mechanical mind has turned the fractured femur into an interesting study. The treatment of fractures has received an impetus during the war which cannot be lost sight of, and it is hoped that the wage-earning capacity and the standard of efficiency required by a man's work will not be lowered in the future to the extent described in 1908 by Mr. Clinton T. Dent in his annual oration on the "After-effects of Injuries," in connexion with the Metropolitan Police, read before the Medical Society of London.

Actual Conditions Present in Malunion.

(1) *Shortening* from 2 in. to 7 in. caused by overlapping of the fragments and bowing of the union in one or other direction. The pull of the rectus femoris and hamstrings are chiefly responsible.

(2) *Bad alignment.*—This varies according to the site of fracture.

(*a*) *Backward sagging* of the lower fragments with union at an angle directed backwards is a common deformity present in these cases. It is one of the worst deformities of the femur, and one of the most prone to occur, especially in lower third fractures in which this deformity eventually produces genu recurvatum, resulting in disorganisation of the knee-joint and crippling. The chief factor producing this, apart from gravity, is the backward pull of the gastrocnemius.

(*b*) *Outward bowing*, caused either by union at an angle outwards, or by using the limb too early without support in cases of soft or frail union, is common. In some cases of soft union, when all apparatus has been removed, the thigh will bend outwards by muscular action only. When this bowing occurs in lower third fractures the knee-joint is thrown out of line, and an unequal strain on some parts of the joint follows, resulting in crippling. The muscles concerned in the bending of the thigh outwards are those causing abduction of the upper fragment, assisted by muscles attached to the pelvis and the femur, which lie in a vertical plane internal to the bone itself, forming, as it were, the strings of a bow.

(*c*) *Forward or inward bowing* of the femur is not common.

(*d*) *Flexion, abduction, and external rotation* of the upper fragment, particularly in upper third cases, is a common deformity, these three conditions coexisting. The amount of external rotation is judged by the appearance of the lesser trochanter in an antero-posterior skiagram; the greater the external rotation, the more of the trochanter is visible. The unopposed pull of the external rotators, glutei, and ilio-psoas, and the slackening of the strap-like ilio-tibial band all help in the production of this malposition of the upper fragment. The results of inefficient treatment in these cases are shortening, T-shaped union of the fragments, and an unsightly thigh, the end of the upper fragment often making its way through the skin.

(*e*) *Internal rotation of the lower fragment* is caused by the rest of the limb below the fracture being allowed to roll inwards, chiefly through lack of support. Union in such a position results in the toes being turned in to a varying degree, and this, combined with other deformities present, makes progression exceedingly awkward. The result of union of a fracture in which the upper fragment is very much rotated out and the lower rotated inwards, leaves a condition in which the patient has little or no power to turn his toes out voluntarily.

(*f*) *Traumatic coxa vara*, present in some cases of fracture of the neck of the femur, resulting in shortening and adduction. Osteotomy at the site of fracture was not done in these cases owing to the risk of suppuration in the hip-joint.

(3) *Impaired movement of knee-joint.*—The range of possible flexion was very poor in most of the German cases, as, apparently, no attempt was made by them to deal with the knee question. In one case in which good movement was present it was only got at the cost of increased deformity due to the man being allowed to walk very early and without any walking appliance.

Causes of Undue Stiffness of the Knee in Fractured Femurs.

(*a*) Suppuration among the thigh muscles, particularly the quadriceps extensors, resulting in scarring and fixation to the bone. This scarring of the quadriceps, especially when near the knee, is the most important cause of a stiff joint. (*b*) Inflammation and injuries about the joint, in some cases caused by the use of callipers, transfixing pins, &c. (c) Prolonged immobilisation, with no efforts at massage and movement.

Extension through the knee-joint is not of itself responsible for stiff joints. Instructive examples of this fact were seen amongst some of the prisoners of war, of which the following case may be regarded as typical.

Pte. M. had an almost immovable knee-joint before osteotomy. When a knee-flexing splint came to be fitted after 10 weeks' extension in a straight Thomas, 20° of flexion at the knee-joint was found possible.

General Principles in the Treatment of Malunion.

In the cases requiring osteotomy the bone was divided at the site and in the plane of union of the original fracture. The further treatment of these cases was carried out in the femur wards, and the stages may be very briefly mentioned and summarised as follows:—

First position.—Application of a well-fitting Thomas's splint, &c., the thigh being kept in position by an extension, for which purpose Sinclair glue or two screws in the upper third of the tibia were utilised; I prefer the tibial screw extension to any other form and this was chiefly used. Callipers to the knee were not used. The limb is supported by slings clipped in position in the usual way and the foot controlled by Sinclair's foot-piece. Extension is obtained by "body-weight," the amount being regulated by the height of the foot of the bed.

Extension by screws into the tibia. (Fig. 1.)—These were largely used in the cases of osteotomy for mal-union where a heavy pull was required in the first position. Method of application: The leg is shaved in the area of operation and the strictest aseptic precautions are necessary. The patient is anæsthetised.

Inner screw. A horizontal incision ½ in. long is made down to the bone on the inner side mid-way between the anterior and the postero-internal borders of the subcutaneous surface of the tibia, 1 in. below the tubercle. A hole is bored slightly downwards, backwards, and outwards through the compact bone, passing across the medullary cavity, and striking off the compact tissue of the opposite side. The diameter of the boring instrument should be less than that of the screw. The latter is driven home, and it is most important that a firm grip should be obtained into the compact tissue of the opposite side. The screw is 2 in. long.

The outer screw, 2½ in. long, has to pass through the anterior tibio-fibular compartment of the leg before reaching the antero-external surface of the shaft. The skin incision is made in the same way, but at a lower level, so that the screws do not foul each other, and the knife is then carried in a plane at right angles to the original incision so as to do the minimum amount of damage to muscle. The screw is fixed in position in the same way as described above, but it is rather more difficult than in the case of the inner one. About ½ in. or more of each screw remains unburied, and over each of these a metal ring-shaped 8 is applied, one of the loops having 3 ft. of strong tape firmly tied on to it. Dressings soaked in a 5 per cent. solution of picric acid are applied, and the whole field of operation is concealed by a sterile gauze roll. This dressing is never removed unless occasion arises.

The two tapes are tied round a square extension support of metal fixed to the end of the Thomas, the ring of the splint having been pushed up the thigh previously as far as the tuber ischii. The width of the extension support keeps the tapes clear of the malleoli.

Advantages of screws.—(1) They are absolutely painless if properly inserted. Those cases which have experienced both glue and screws infinitely prefer the latter. A patient upon whom osteotomy had been performed was not aware that screw extension was being used until he was questioned about them four weeks later. (2) In certain cases when the skin will not stand a pull by glue, screws will save much trouble both to the patient and the surgeon. (Screws must not be applied to blistered parts.) (3) Once inserted, the screws last throughout the treatment of a case. (4) Unlike the wounds produced by many callipers, they do not cause a zone of inflammation, and the wound heals in a few days when the screw has been removed. (5) A greater amount of pull can be obtained than with glue, sufficing for all practical purposes.

Disadvantages.—(1) The possibility of sepsis, depending entirely on the precautions taken. Our results have been excellent, and nothing untoward has occurred. (2) An anæsthetic is needed for their insertion, but in cases in which the femur is being put up under an anæsthetic or an operation done in the theatre the screws are done at the same sitting.

No anæsthesia is necessary for their extraction; the process is not so painful as pulling glue or adhesive plaster off a hairy leg. X rays show an area of atrophy around the thread of the screw, and this makes extraction of the screw easy.

The first position is, therefore, one of extension and of manipulation of the fragments, the deformity being corrected and an additional length given to the limb. The attainment of the latter is accomplished in two to three weeks by continued and steady traction on the soft parts of the thigh, the supporting slings controlling the fragments as desired. Enough callus is, as a rule, formed in eight weeks to hold the fragments in the desired position, and the first stage is thus terminated.

Second position.—In the second position the body-weight extension is no longer allowed, so that the limb lies passively in the splint. A knee-flexing arm is applied to the Thomas and movements begun. The second stage is, therefore, one of passive hardening of the newly formed callus, and is utilised also for movements of the knee.

Third position.—After three to four weeks a walking calliper is applied and used for two to four months. This period is one of active hardening of the junction of the fragments, and prepares for the time when the patient can discard all appliances with safety.

All the upper third malunited fractures were treated on Sinclair's net-bed, and it is impossible to over-praise this excellent means of double abduction and extension in the first stage. Frequent skiagrams must be taken, especially in the first stage of the treatment, anterior and lateral views being necessary. Massage of the knee and patella and muscles of the thigh is begun early, as is also electrical stimulation of the quadriceps.

Type of Suppuration after Osteotomy.

The outstanding feature in the majority of cases in which osteotomy was done for mal-union was the occurrence of suppuration, and this of a peculiar and apparently characteristic type. It will be seen from the table appended that all but two of the cases operated on had been healed for periods varying from two to ten months, and the greater number of these suppurated after osteotomy was performed. This fact suggests that the organisms concerned remained latent in the tissues, either in the soft or bony parts or in both. It has been demonstrated by other observers that organisms do exist, and remain latent in scar tissue and in and around foreign material in wounds which have been healed for some time. It is a common experience to see a "flare up" nowadays in a stump or limb many weeks after complete healing, causing sometimes a transient inflammation, sometimes suppuration, with the "melting away" of an old scar. The presence of a sequestrum is also a common cause of the above state of affairs, and it is possible that dead bone may not reveal its presence for many months and then show itself in the way mentioned. Skiagrams occasionally show opacities in some of the long-standing cases, suggesting dead bone, and yet the wounds healed up without operation. How long and how many of these cases will continue healed remains to be seen in the future. In some of the cases to be described the infection following the operation was undoubtedly derived from the bone, for cavities containing purulent material were seen during the operation in the newly formed bony parts.

Results of Examination of Pus and Bacteriological Report.

The pus is thick, dirty yellow, abundant, and has a most characteristic foul, strong, fæcal-like odour, making the vicinity of the patient most offensive. The pus from a number of these cases was examined with a view to demonstrating the presence of spore-bearing anaerobes. No spore-bearers, however, were shown. The pus contained abundant organisms of the proteus and coliform types which produced very foul cultures. Staphylococci were constantly present; streptococci also in most cases. On one occasion cultivation of a small piece of scar tissue removed at the time of operation grew *Staphylococcus aureus* only.

Course of Events following Osteotomy.

Drainage is provided in all cases, as for two or three days the oozing of blood derived from the raw bony surfaces is considerable. The amount of shock was small in those cases in which the operation did not prove very difficult, where little blood was lost, and where gas and oxygen with ether was the anæsthetic used. Some shock would seem to be produced by hammering upwards against the hip-joint. It is odd that even after six and eight months, suppuration, so profuse in amount and clinically so alarming, should occur. The thigh swells up, becoming tense, shiny, and tender. Two to three days after operation the oozing blood becomes purulent and offensive. The next day or so a profuse discharge of pus is obtained. The temperature reaches 101°–103° (see Chart 2) about the fifth day and a corresponding rapid pulse is obtained (100–120). If the draining proves adequate the temperature begins to fall step-ladder fashion, becoming normal about the tenth day. Improvement is first detected by wrinkling of the skin taking the place of the glossiness, and appears first when the temperature is beginning to come down. The progress of the case depends on the efficiency of the drainage. The stitches of the 8-in. incision do not attempt to give, and there is often no redness of this part, or, indeed, of the thigh as a whole, due to the fact that the pus is among the muscles and deep to the strong limiting fascia lata of the thigh.

The attenuated organisms are not of a virulent character, for after the natural forces of the body are mobilised and brought into the field of action, a matter of some five days, the enemy is soon overcome. A profuse foul discharge may be kept up for some time, but the temperature and pulse keep down. A subsequent rise of temperature indicates the collection of a pouch of pus requiring an outlet. (See Chart 3.)

Necrosis following suppuration after osteotomy necessitated sequestrotomy in five cases. In doing the operation of sequestrotomy the old scar is used, a sinus being present here as a rule. A 4-in. incision is usually made down to and through the periosteum. The latter is raised and the bone chipped away around the cloaca until the cavity in the femur is exposed and can be thoroughly explored for the removal of the sequestra. At the same time the cavity is converted into a pond with sloping edges to hasten its obliteration and healing of the case. Sequestrotomy was not done early in the cases mentioned. The operation should be left until it is time for the patient to walk or until he actually has walked about in a calliper for three weeks or so. Obviously, with firm union such an operation can be more safely and thoroughly done.

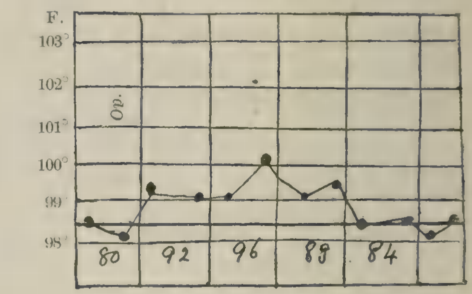


CHART 1.—Osteotomy without sepsis.

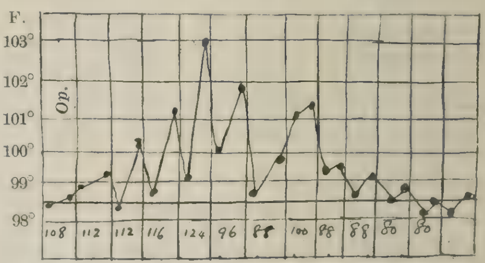


CHART. 2.—Osteotomy complicated by sepsis.

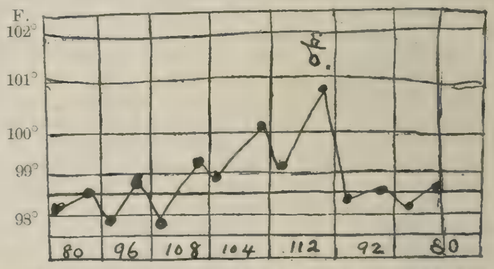


CHART 3.—Pocketing occurring later, after osteotomy and sepsis.

The Operation of Choice and the Prevention of Bad Results.

It may be argued that it would be better, in view of the suppuration occurring, to divide the femur some distance away from the site of fracture in a fresh field free from lurking organisms. The results obtained, however, by the operation as done by Mr. Harold Wilson leave no doubts as to the method of choice. The only disadvantage, suppuration, has not proved dangerous when properly provided for.

The advantages of this operation are:—

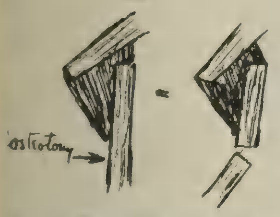
(1) *Increased length*—an important factor when 2 in. or more (see Table of results) may be added to the length of the limb.

(2) *Improvement of alignment and correction of deformity.*—In cases where there is angulation it is most important that in the corrected position the fragments, if not in end-to-end apposition, should at least lie parallel to one another and so produce a straight thigh. The importance of this cannot

be exaggerated, especially in the deformity resulting from the backward sag of the lower femoral fragment.

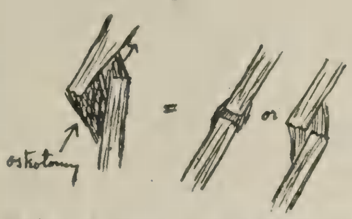
The two methods may be represented as shown in Diagrams A and B.

A



Result.—Correction of alignment to a large extent, but shortening still remains.

B



Method of choice.—Result: Better correction of alignment and correction of shortening.

The causes of angulation and bending of the femur are:—

(*a*) *Want of care in the first position.*—Mere plating of a femur and treatment without a slight extension on the limb to keep the muscles occupied leads to union, often in a bowed position; indeed, the strong plate bends also if the screws hold.

(*b*) *Assuming the third position too early* or discarding the calliper too soon.

(*c*) *Walking when angulation is already present* to a greater or less degree.

(*d*) *Frail union*, as when only half the broken surface of the femur throws out callus; when loss of bone results in a large gap made good by callus; when there is partial union only, through the loss of fragments; if end-to-end apposition is obtained with little visible or palpable callus.

(*e*) *Sepsis.*—When a sequestrum is present sepsis does not prevent formation of callus, but occasionally seems to hinder proper calcification, with the result that bowing occurs on walking, or even by the traction of muscles while the limb lies in bed between sand-bags.

As already mentioned, premature walking is not the only cause of bowing of the thigh; it can occur by muscular action alone while the limb lies passively in bed. The commonest direction of bowing in these cases is outwards, and seems to be due largely to the pull of the adductor muscles on the lower fragment in some cases. The upper third fracture, or osteotomy, particularly offends in this way, the bowing outwards being primarily due to the extraordinary tendency to abduction of the upper fragment.

Such cases are treated by being put up again into the first position of extension at once, and no difficulty is experienced in getting good alignment again in a few hours or days. A fortnight in this position and a further three to four weeks in the second position warrants a further trial with the walking calliper. The case that has once "bent" needs to be watched, for it may recur, and a further period of treatment, as just described, may be necessary. Bowing of the thigh is often the cause of a surprisingly large amount of shortening, $1\frac{1}{2}$ and 2 in. being common in the slightly curved cases, and this is especially true of upper-third fractures.

Methods for the Correction of Bowing.

(1) *Re-fracture by breaking, without open operation.*—The site of fracture is snapped across and the corrected alignment maintained by treatment in the first position with the help of slings pulling the fragments into position. This method, of course, would apply only to recent cases where there was no great overlap, or to cases of frail union which would not mould into position, but would crack across the narrow bridge of callus instead. Simple fractures are safer to deal with in this way than compound, owing to the risk of suppuration ensuing in the latter.

(2) *Active moulding by manipulation*, with or without an anæsthetic, depending on the case and resistance expected. This is done by trying to bend the femur back gently into the straight position over one's arm. This, as a rule, requires to be done within three months of the original fracture, but the amount and density of the callus, as shown in a skiagram and the history of the case, must determine whether moulding is possible. Upper-third cases are difficult to treat by this method, especially when the upper fragment is a mere stump. The case is then treated in the first position, &c., as just described for recent bowing of the thigh.

(3) *Passive moulding* by treatment in the first position—i.e., continuous pulling and the help of slings or pressure pads, which help to push the bent thigh straight. This method often, in combination with active moulding, is the method to be preferred. For upper-third cases the net-bed is most successful. This method, again, depends for its success on the time since the fracture and the amount and quality of the new bone formation.

Pte. R., admitted 13 weeks after simple fracture of upper third. Firm union. Much outward bowing due to abduction of upper fragment. (Fig. 3.) Shortening $1\frac{3}{4}$ in. Treated on net-bed with 24 in. drop. Skiagram three days later showed no improvement. Ten days later some alteration in position had taken place quite distinctly. After 14 days' continuous pulling, the alignment as shown in Figs. 11 and 12 was obtained. Shortening now $\frac{1}{2}$ in. Bowing absolutely corrected. Treatment, before walking in a calliper, lasted nine weeks.

Pte. Y. Compound fracture, mid-third, of several months' standing. Wound healed. No overlap of fragments, firm union. Net-bed had to be used owing to the outward bowing of the femur being too great to allow of the application of a Thomas splint. Shortening 5 in. Ten days later a flush appeared around the scarring. T. 103°. The flush spread up and down the thigh in the usual way, then subsided in three days. X rays showed the femur straightening out, and four weeks' pulling produced the desired result. The second position was maintained for three weeks. Deformity corrected; shortening 2 in. To prevent the tendency to bowing the thigh was put in plaster, over which a walking calliper was worn. Suppuration would probably have ensued in this case if osteotomy, or cracking the femur across, had been done. A similar result might have followed forcible moulding, so the method of passive moulding was probably the shortest and the safest in the long run.

(4) *Osteotomy.*—Cases of bowing with a great deal of overlap should be treated by osteotomy through the plane of union, as described below.

Pte. C. (Figs. 5 and 6) shows the results of such treatment on a net-bed. Besides the angulation present there was 4 in. of shortening. The result was a perfect thigh with $1\frac{1}{2}$ in. shortening.

Pte. W. had similar treatment, except that it was thought better to wire the fragments together to hold them in position until union occurred. The overlap was very small, the shortening being due almost entirely to the extreme abduction of the upper fragment. Profuse and long-continued suppuration followed operation. Shortening reduced from $3\frac{1}{2}$ in.–$\frac{3}{8}$ in. Deformity corrected.

Osteotomy the Operative Technique.

The operative technique, as adopted by Mr. Harold Wilson for the treatment of malunion, is as follows:—

A large incision (6 in. to 8 in.), utilising the excision of a scar or unhealed sinus when these are present, is made on the outer side of the thigh. The incision is so placed as to enable the lower end of the upper fragment to be freely exposed, for the latter serves as a guide for the insertion of the osteotome into the plane of union. The lower fragment usually lies deep to the other and on its inner side, its upper end lying high up when there is much overlapping. The incision cuts cleanly through the skin, fascia lata, and muscle, down to the bone, incising the periosteum from end-to-end of the wound. Bleeding from several arteries, branches of the external circumflex, is often severe and these require tying. It is better to work without a tourniquet.

The thickened periosteum is elevated completely off the fragments, a scalpel being necessary in places where scarring binds the periosteum down. The periosteum having been raised and a free exposure of the site of union obtained, a broad, slender Albé osteotome 2 in. wide is inserted under the lower end of the upper fragment if possible, and the junction of new bone between the fragments divided carefully in an upward direction. Just how the osteotome is placed depends, of course, on the disposition of the fragments, the aim being to divide the new bony cement and not the original main fragments. The latter are liable to splinter if care is not taken, and one object of the broad osteotome is to try and prevent this.

An assistant now holds the foot and moves the leg as directed, to enable the operator to make sure that division is complete and to give him an idea how the fragments are eventually going to lie in relation to one another when extension is applied. Any scar tissue or props of bone, inhibiting free movement or preventing apposition, are removed. In some cases simple division may be all that is necessary. In others, division of union and shaping of the ends of the bone may be deemed advisable, due allowance being made for the subsequent lengthening which will occur as the result of continuous extension. In others, again, division and the free removal of props of new bone (see Figs. 9 and 10) is necessary before correct alignment by pull is possible, as these bony growths keep the fragments apart. The wound is irrigated with hot saline and tags of tissue removed. The muscle and covering fascia are sewn up with continuous catgut and the skin sutured, drainage being provided by a large tube carried down to the bone at the upper end of the incision. An additional tube is sometimes inserted about the middle of the incision, or posterior drainage is provided, especially when suppuration is expected. The limb is then put up into the first position in a Thomas's splint or a net-bed, as the case requires, and treated as an ordinary fractured femur. In simple malunited fractures, or when no suppuration is expected, the drainage-tubes are removed in 48 hours.

Further treatment.—Most of the further treatment has been described above. An X ray is taken three or four days after the operation, and any adjustment required is made then. Large quantities of callus are usually throw out in these cases of osteotomy, and there is little fear of non-union provided the suppuration problem is dealt with effectively. Thirteen weeks usually sees the patient on his feet in a walking calliper, although a small sinus may still be present and the case may require a sequestrotomy at a later date. The skiagrams shown are typical examples of the results obtained.

Summary of Methods of Treatment for Malunion.

(1) Deformity with much overlapping (i.e., shortening): Osteotomy through plane of union.

(2) No deformity but much overlapping (2 in. or more): Osteotomy through plane of union.

(3) Deformity with little or no overlapping (recent case): (*a*) Moulding into position; (*b*) or actually cracking the bone across and treatment by splinting and extension.

(4) Deformity with little or no overlapping (old case with firm union): (*a*) Re-fracture if possible without an open operation; (*b*) open osteotomy.

In conclusion, I desire to express my thanks to Sir Anthony Bowlby for the introduction. To Mr. Harold Wilson, who initiated the femur work in this hospital and was until recently in charge of the femur wards, I am deeply grateful for kind and useful guidance. Lieutenant-Colonel R. J. W. Oswald, O.B.E., R.A.M.C. T., commanding the 1st London General Hospital, has kindly consented to allow the publication of these cases.

Showing Results following Osteotomy.

Case No.	Region of fracture.	Condition of wound at operation.	Suppuration after operation.	Shortening before and after operation.		Knee flexion before and after operation.	
				Bef.	Af.	Bef	Af.
1	Upper third. (Sinclair net-bed.)	Healed 2 mos.	Moderate.	4½ in.	2¼ in.	0°	20°
2		,, 3 ,,	,,	4¼ ,,	1¼ ,,	5°	15°
3		,, 10 ,,	Slight.	3¾ ,,	1½ ,,	90°	90°
4		,, 4 ,,	Severe and prolonged.	3½ ,,	⅜ ,,	30°	Uf.
5		Simple fracture.	—	1¾ ,,	¼ ,,	5°	30°
6	Middle third.	Unhealed.	Slight.	3 ,,	1 ,,	0°	30°
7		Healed 5 mos.	Nil.	2⅝ ,,	½ ,,	10°	45°
8		,, 4 ,,	Moderate.	3¼ ,,	1⅜ ,,	10°	45°
9*		Unhealed.	Severe.	4 ,,	1½ ,,	5°	30°
10		Sinus c. sequestra.	Moderate.	4½ ,,	2 ,,	5°	20°
11		Healed 5 mos.	Slight.	2⅞ ,,	1⅛ ,,	15°	30°
12		,, 4 ,,	Moderate.	5 ,,	2 ,,	5°	20°
13†		,, 6 ,,	Nil.	2⅝ ,,	½ ,,	10°	60°
14‡		Unhealed c. sequestra.	Profuse.	7 ,,	1½ ,,	5°	Uf.
15	Lower third.	Simple fracture.	—	3 ,,	Nil.	15°	Uf.
16		,, ,,	—	2⅛ ,,	1¼ in.	35°	35°
17		Healed 2½ mos.	Moderate.	4¾ ,,	4 ,,	0°	Uf.
18		,, 8 ,,	,,	3¼ ,,	¾ ,,	90°	60°
19		,, 3 ,,	Severe.	3½ ,,	1¾ ,,	10°	30°
20		,, 3½ ,,	Nil.	2 ,,	Nil.	10°	Uf.

* See Figs. 5 and 6. † See Figs. 9 and 10. ‡ See Figs. 3 and 4.
Uf. = Unfinished.

Showing Results following Moulding (see Figs. 11, 12).

Case No.	Kind of fracture.	Time between date of fracture and moulding.	Shortening before and after operation.	
			Before.	After.
21	Upper third shaft. Gunshot wound.	4 weeks.	1 in.	¼ in.
22	,,	1 year.	2 ,,	½ ,,
23	Pulping of trochanters. Gunshot wound.	18 weeks.	2½ ,,	1⅝ ,,
24	,,	12 ,,	2½ ,,	¾ ,,
25	Pulping of upper third shaft. Gunshot wound.	7 ,,	1½ ,,	0
26	Upper third shaft. Simple fracture.	8 ,,	1⅛ ,,	½ ,,
27	,,	4 ,,	1 ,,	0
28*	,,	14 ,,	1¾ ,,	¾ ,,
29	Middle third shaft. Gunshot wound.	30 ,,	5 ,,	2¼ ,,
30	,,	14 ,,	8 ,,	1½ ,,

* See Figs. 11 and 12.

The upper third cases were all treated on a net-bed, for periods varying from 6 to 12 weeks. In all cases the deformity present was corrected, and thereby the limb considerably lengthened.

DESCRIPTIONS OF ILLUSTRATIONS.

FIG. 1.—Method of extension by screws in tibia.

FIG. 2 (Case 14 in table).—Showing extreme flexion and abduction of upper fragment. Union firm. Sinuses c. sequestra present. Treated by wedge-shaped osteotomy from outer side; sequestra removed at the same time. (Screw extension to tibia.)

FIGS. 3 and 4.—X ray of Case 14. Before operation and three weeks after operation. Result shown in table.

FIGS. 5 and 6.—Before and after osteotomy. Showing upper fragment abducted, flexed, and externally rotated. (See Case 9 for result.)

FIGS. 7 and 8.—Before and after operation. Lateral views. Shows great overlap of fragments, and then reduction in the finished result. (Case 8.)

FIGS. 9 and 10.—Shows necessity of removing the "bony props" during operation. Also shows cavity in femur c. debris. (Case 13.)

FIGS. 11 and 12.—Before and after "moulding" on a net-bed. (Case 28.)

FIG. 1.

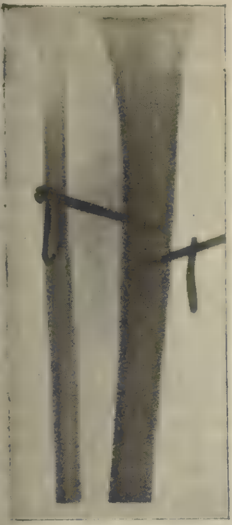


FIG. 2.

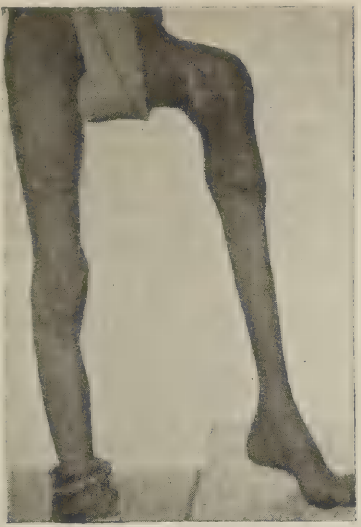


FIG. 3.

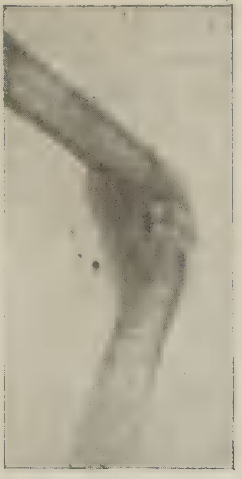


FIG. 4.

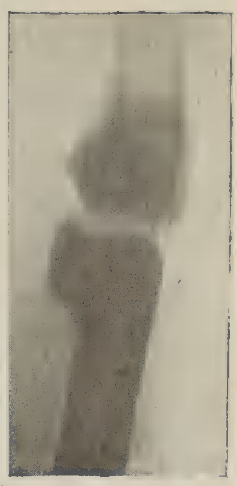


FIG. 5.

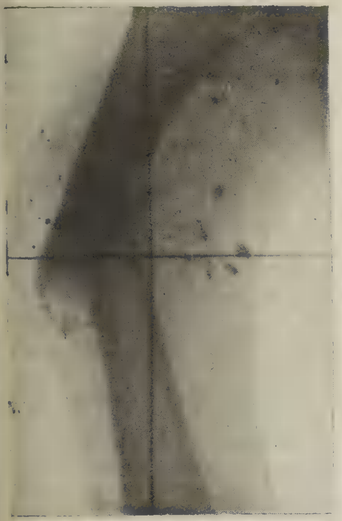


FIG. 6.

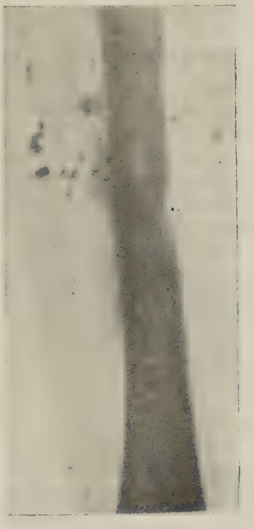


FIG. 7.

FIG. 8.

FIG. 9.

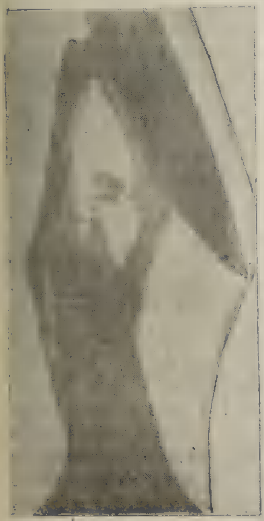


FIG. 10.

FIG. 11.

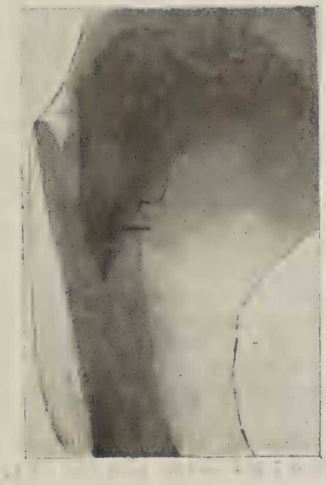
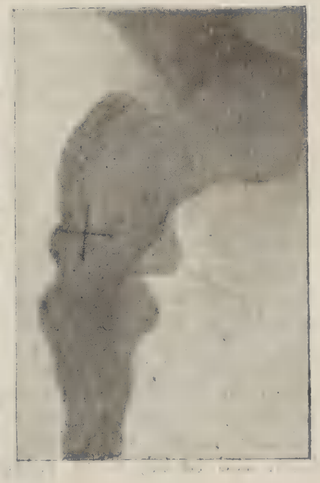


FIG. 12.



For descriptions of illustrations see opposite page.

THE MEANING OF TACHYCARDIA.

BY R. McNAIR WILSON, M.B., CH.B. GLASG.

(Read before the Fellowship of Medicine.)

AFTER the recent influenza epidemic a number of cases presented themselves in which a rapid pulse-rate appeared to be the chief symptom. The clinical picture was that of convalescence, a rather slow convalescence. The patients tended to be breathless and occasionally complained of feeling giddy. If their attention had been called to their pulses they usually showed anxiety at the fast rate. On the other hand, they were often quite unaware that their pulses were quick at all. Many of them were apparently well and capable of considerable exertion. Other cases of tachycardia have been met with in patients suffering from dysentery, chronic malaria, chronic trench fever, and other diseases.

The chief physical sign is the quick pulse, which may reach 120 or higher, but which is commonly between 90 and 110. This pulse quickens still further on exertion, running up often to 160, as recorded by the polygraph. Moreover, there is a normal "release" with atropine which, when given in doses of 1/33 gr. subcutaneously, produces an acceleration of 20–25 beats a minute.

This normal release led to the view that the vagus nerve in these cases is normal in all respects, but evidence gradually accumulated which pointed to a different conclusion. It was found that if the patients were instructed to take a long deep breath and hold it marked slowing of the pulse (Fig. 1) or a marked loss of pulse volume with quickening was wont to occur. After atropine this phenomenon could not be elicited. (Fig. 2.) Moreover, in a series of controls who had not recently suffered from any acute illness and who were not the victims of "rheumatism" no slowing and no loss of volume occurred. It was concluded that the phenomena were abnormal, and that they depended on the vagus for their production.

The next question is: The vagus is not less excitable than normal in these cases; is it more excitable than normal? It was argued that there are two functions of the heart which are distinct, augmentation and acceleration. Augmentation is accomplished when a more prolonged or larger diastole is followed by a larger systole. Both cardiac nerves, the vagus and the sympathetic, take part in this mechanism, the vagus by increasing the length of diastole, the sympathetic by responding in systole. Acceleration, on the contrary, is a purely sympathetic phenomenon. Now the effect of atropine is, for the moment, to inhibit the vagus, and so to cause the nervous mechanism of augmentation to break down. Thus acceleration alone remains if the circulation is to be maintained. This is the so-called "release of the pulse" under atropine. If, however, atropine were to be given in a dose small enough not to inhibit the vagus but somewhat to lower its excitability, we should discover by the result whether or not the nerve was hyper-excitable in those cases of tachycardia. For if the tachycardia should be due to an excessive vagus pull compensated by acceleration the act of lowering the excitability of the vagus to normal must cause the pulse to slow down; compensatory acceleration would no longer be necessary.

Four cases with pulse-rates at rest, varying from 108 to 85, were selected; all these showed tachycardia when not at rest, and one control who was healthy was added to the number. A dose of 1/200 gr. atropine was given intravenously. The results are shown in Fig. 3.

It was then seen that a very small dose of atropine was capable, in these cases of tachycardia, of slowing the pulse markedly. In the control case (*b*), on the contrary, quickening took place. Clearly, then, a slight lowering of vagus excitability produced slowing, or, in other words, the acceleration was compensatory to excessive vagus action. Numerous other experiments on the same lines were carried out with the same results.

Function of the Vagus.

It appeared that the conception of the vagus, which was expressed by Luciani, the Italian physiologist, as the "nerve of diastole," was justified. For this nerve would not seem to be inhibitor in the narrow sense, but rather to act by increasing the filling time of the heart in response, no doubt, to stimulation from the cortex. A vagus "pull" thus initiates a period of increased cardiac effort, what is spoken of as increased "output per beat." But a prolonged diastole with consequent increased filling of the heart presupposes a more powerful systole. In other words, the whole level of cardiac activity is raised. If the heart, on the other hand, should not be able to make this response in each individual beat it will require to add acceleration to augmentation—it will require, that is to say, to increase output per minute, since output per beat is not sufficient.

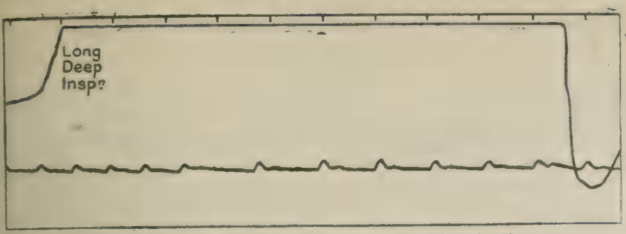
In cases where the vagus is hyper-excitable there will always be a tendency every time that influences pass from the cortex to the medullary centres —i.e., on excitement or calls for effort—for the vagus to overdo its part and to prolong diastole unduly. The result must be a compensatory acceleration if the necessary level of activity is to be maintained. Professor F. A. Bainbridge, dealing with the purely muscular question, has recently written:—

> "In response to a moderate increase in venous inflow a comparatively slight dilatation enables a powerful (thick-walled) ventricle to increase considerably its output per beat, and still to empty itself almost completely at each beat. Hence a slight increase in the pulse-rate will bring about a sufficiently large output per minute to prevent any accumulation of blood on the venous side, and therefore to prevent an appreciable rise of venous pressure. Placed under the same conditions a feeble (thin-walled) ventricle, even when dilated to its physiological limit, may be unable greatly to increase its output per beat and may be far from empty at the end of systole. In these circumstances considerable acceleration of the pulse will be necessary to increase the minute volume of the heart sufficiently to balance the venous inflow. In this way acceleration of the pulse can compensate for lessened contractile power in maintaining the output of the heart per minute."

The work described above suggests that an over-active vagus imposes a similar strain on a heart not necessarily weakened at all. But there is another aspect of the question, which must now be introduced. During the work on tachycardia a case was encountered, tracings from which, and from another similar case, are shown. (Figs. 4 and 5.)

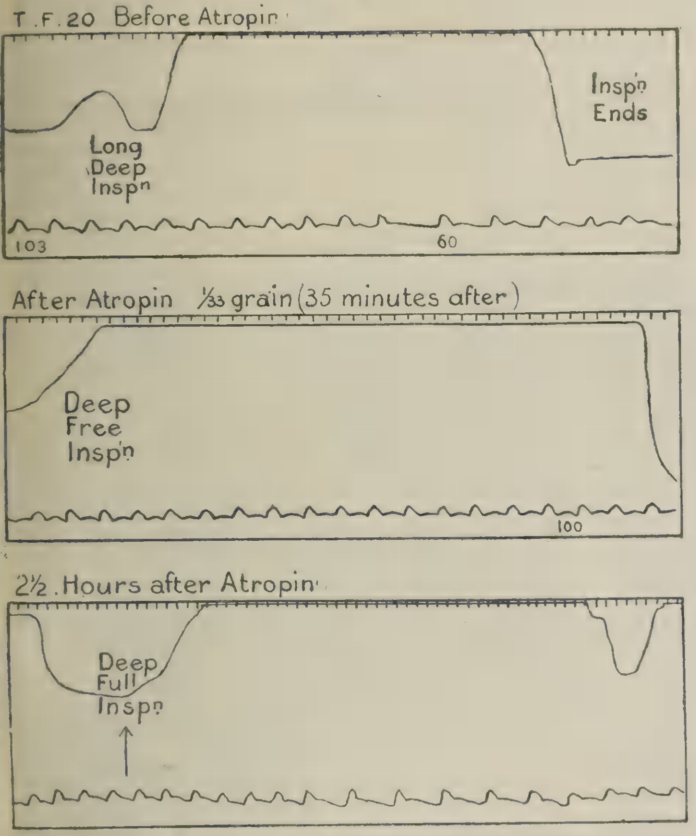
In this case on deep inspiration there was a preliminary slowing from 95 to 75. And then quite suddenly the blood pressure, which had been 120 mm. Hg systolic, fell to 80 systolic, the pulse ran up to 100 and later to 110, and the patient felt faint. Thus both slowing and loss of volume were seen in the same tracing. It appeared that

FIG. 1.



Trench fever. Marked slowing on deep inspiration.

FIG. 2.



Slowing of pulse on deep inspiration, removed by atropine.

vagus stimulation by deep inspiration had in this case:

1. Made it impossible for the compensatory acceleration, the tachycardia, normally present to be kept up. Consequently the pulse slowed and acceleration was dropped, leaving only augmentation. There was a fall of blood pressure of 5–10 mm. Hg systolic.

2. Finally placed the heart under such a strain that the contractile power was unable to cope with the over-filling, systole for diastole, so to speak. The organ was incapable, that is, of emptying itself or nearly emptying itself in a single systole. The mechanism of augmentation had, in fact, broken down.

Thus excessive vagus stimulation produces the same effect as inhibition of the vagus by atropine. The reciprocal action of vagus and sympathetic can be dislocated in two ways—by "cutting out" the vagus, or by increasing the irritability of this nerve to an excessive degree. In both cases the only resort left to the heart is acceleration, which at once takes place.

Types of Acceleration.

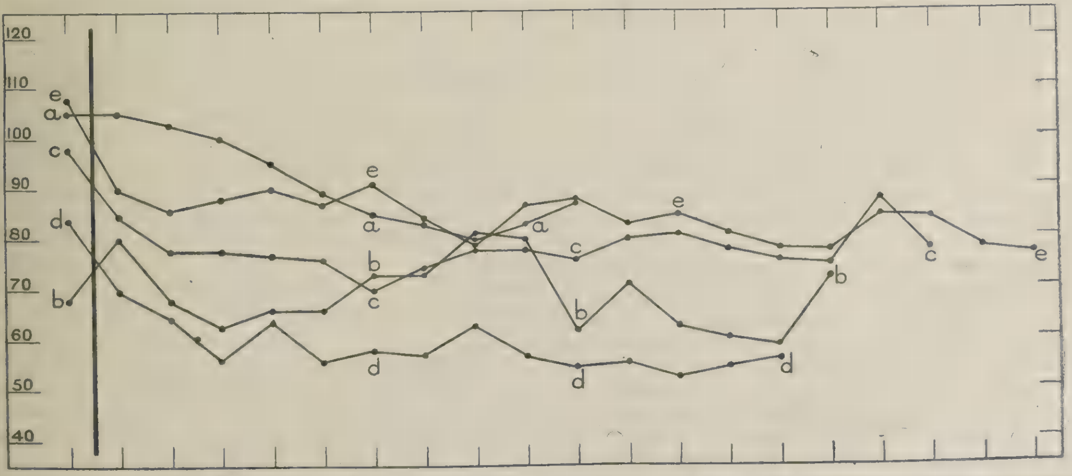
There are thus three types of acceleration, all differing in their means of production:—

1. The type represented by the ordinary case of tachycardia, in which acceleration has been added to augmentation. The blood pressure is usually normal or slightly higher than normal—e.g., 140 mm. Hg systolic.

2. The type occurring when augmentation is abolished by atropine. Blood pressure slightly less than normal.

3. The type occurring when augmentation is abolished by excessive irritability of the vagus. In this case the blood pressure falls sharply, to 80 mm. Hg in many cases, and the patient feels faint. This type of acceleration is seen in the very severe cases of septic fevers, in pneumonia which is running to a fatal issue, and in other cases. It can also be

FIG. 3.



Graphic records of pulse-rate after a dose of $\frac{1}{200}$ gr. atropine intravenously. Tracings taken with polygraph. The perpendicular line shows point of injection. Note the fall in rate in all cases except *b*.

FIG. 4.

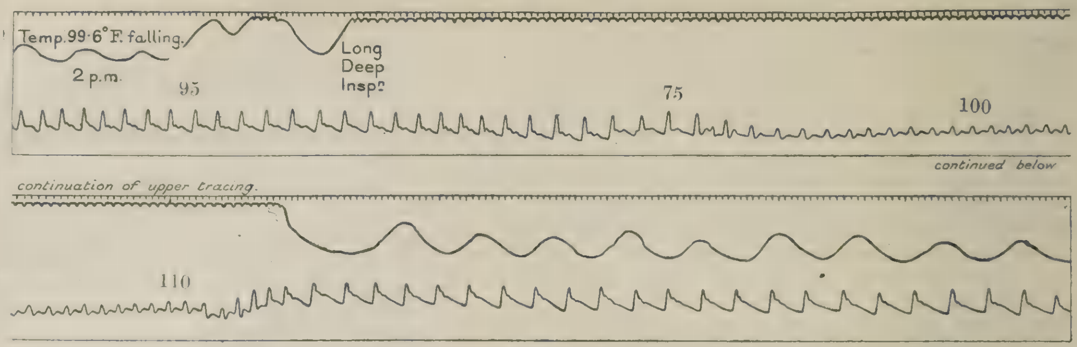
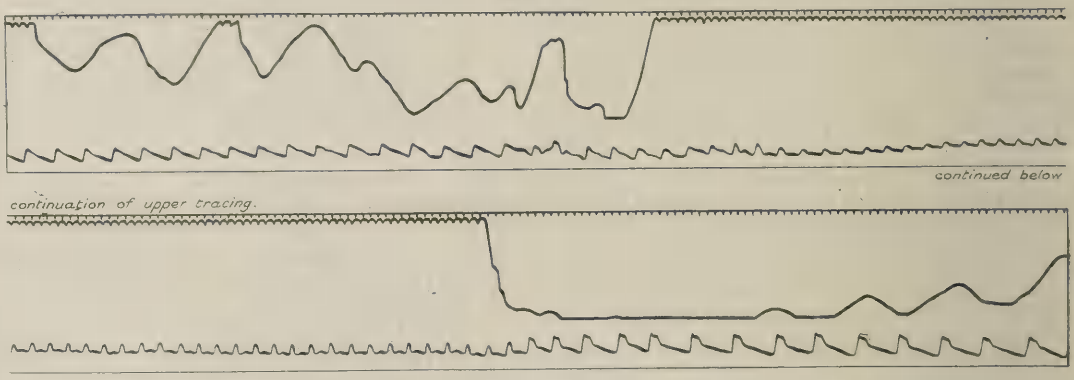
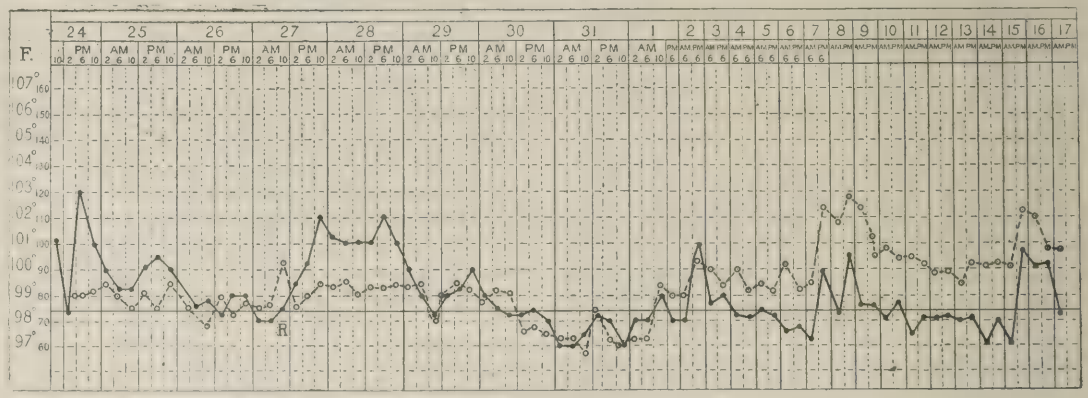


FIG. 5.



Sharp fall of blood pressure in case of trench fever with hyper-excitable vagus on deep inspiration.

FIG. 6.



Temperature and pulse in trench fever.

produced, as has been shown, by vagus stimulation in some cases of tachycardia.

Tachycardia by this showing is a compensation to a hyper-excitable vagus. It remains to suggest that the vagus is so rendered hyper-excitable by the action of a toxin. In the accompanying chart from a case of trench fever this can be seen. (Fig. 6.)

It will be observed that across the chart there is a gradual decline of the temperature curve and a gradual rise of the pulse curve. Moreover, the acceleration of the pulse towards the end of the chart increases with each slight rise of temperature. If the views enunciated are correct, the explanation is that while at first the toxin was powerful enough to render the vagus unduly excitable, and so to prevent acceleration towards the later stage of the illness, the toxin had lost power and acceleration could occur. In point of fact, the blood pressure, which had been subnormal at the beginning, became normal later when the compensatory acceleration was established. The same tendency to the establishment of tachycardia as fever declines can be observed in many influenza charts and in other diseases. When tachycardia is established the patient is better in his strength than before this takes place.

Conclusions.

1. Tachycardia in a man who is up and about is compensatory in character, the addition of acceleration to augmentation.

2. It points to the presence of a mild infection, and can be removed only by removing the infection.

3. There is evidence that the action of the toxin is directly on the cardiac vagus.

DISLOCATION OF CERVICAL SPINE.

REDUCTION UNDER ANÆSTHESIA.

BY J. PHILIP BUCKLEY, M.D. CANTAB., M.S. LOND., F.R.C.S. ENG.,
HONORARY ASSISTANT SURGEON, MANCHESTER ROYAL INFIRMARY.

IN June, 1918, an officer was admitted under my care at a base hospital in France, his field medical card bearing the diagnosis, "Injury to right shoulder." I saw him in bed soon after admission, and finding him cheery and apparently fit, and a cursory examination of the right shoulder revealing no gross lesion, I turned my attention to apparently more serious cases. Next morning when I came into the ward he was up and walking about. It was obvious at the range of the few yards which separated us when I observed him that he had a marked deformity of the cervical spine. His head was held forwards with the chin approximated to the chest, and there was a definite angular deformity at the back of the neck. I at once ordered him back to bed.

The history of the case was as follows. He was riding a motor-cycle in the dark, and coming into contact with another vehicle he was thrown off. He was temporarily "knocked out" and was taken back to his unit, where he was seen by the medical officer, who sent him to bed. As he was not better in the morning he went to the C.C.S. He reached the base about three weeks after the accident, and when I gently reproved him for having got up he seemed surprised, and said he had been accustomed to get up at the C.C.S., and had even played badminton there.

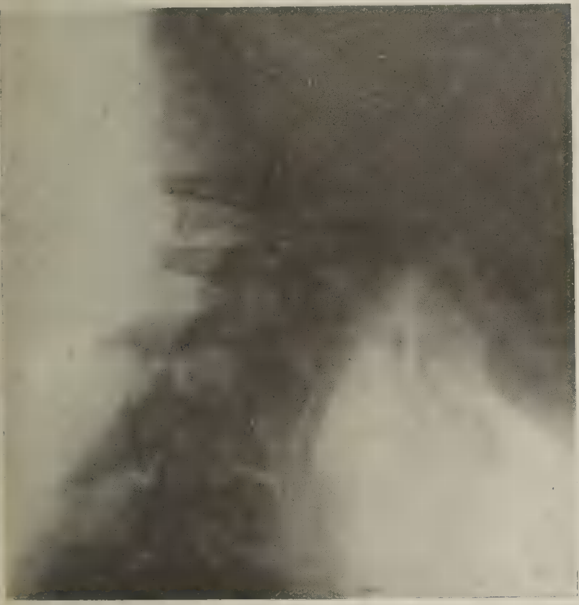


FIG. 1.—Showing dislocation of cervical spine between fourth and fifth vertebræ.

I had an X ray photograph taken. (Fig. 1.) This shows a dislocation of the cervical spine between the fourth and fifth vertebræ. There appears to be no gross bony lesion. The articular processes of the fourth and fifth vertebræ are just clear of one another; the spinal column above the lesion is displaced forwards, and rotated forwards to an angle of 140° with the spine below the lesion. The patient was very cheerful and felt well, and beyond the marked deformity, slight referred pain over the right shoulder (hence the F.M.C. diagnosis), and slightly increased knee-jerks did not present any symptoms of spinal injury.

Reduction under Anæsthesia.

As it seemed a pity to condemn a fine young man to live the rest of his life with his chin sunk upon his chest, after careful consideration I decided to attempt reduction under an anæsthetic. I first made a poroplastic splint to embrace the back of his head with two side wings around the temples, to extend down the neck and well down the dorsal spine, with two lateral wings to embrace the chest. I made this to fit a hospital orderly about the same size as the patient. Careful precautions being taken to keep the head, neck, and body fixed during the process, he was anæsthetised. When he was well under the anæsthetic I exerted traction on the neck, at the same time making leverage backwards. Though there was no reduction "with a click," yet I was able so far to effect a reduction that external signs of the deformity disappeared. The splint which I had prepared was then applied with the aid of strapping and a bandage. This splint I afterwards reinforced with a strip of metal riveted to it along the mid-line. He suffered no ill-effects from the manipulation.

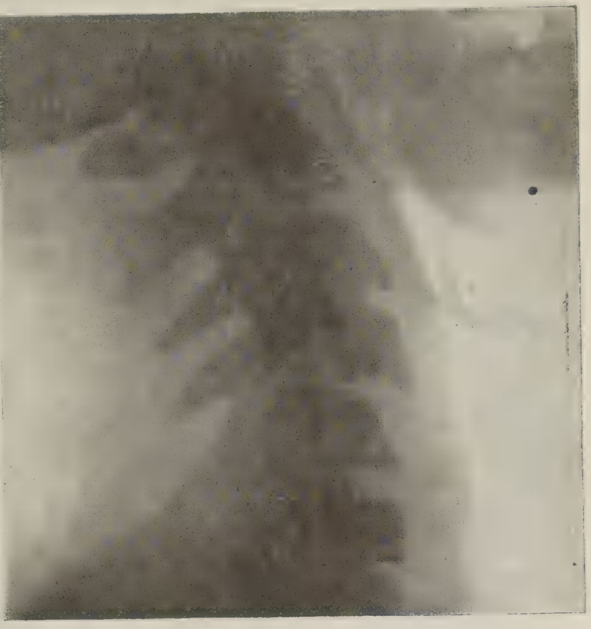


FIG. 2.—Showing natural curve of neck restored.

The result of the manipulation is shown in the X ray taken subsequently. (Fig. 2.) It will be seen in this that the natural curvature of the neck has been restored; there still appears to be some displacement forwards of the fourth upon the fifth cervical vertebra, but I think this is not as great as at first sight it may appear, since it will be noted that the front of the body of the fifth vertebra shelves more abruptly upwards and backwards than the remainder of the vertebræ, rather suggesting that it has been damaged by the body of the fourth vertebra grinding over it in the act of dislocation, although no loose fragment of bone can be seen.

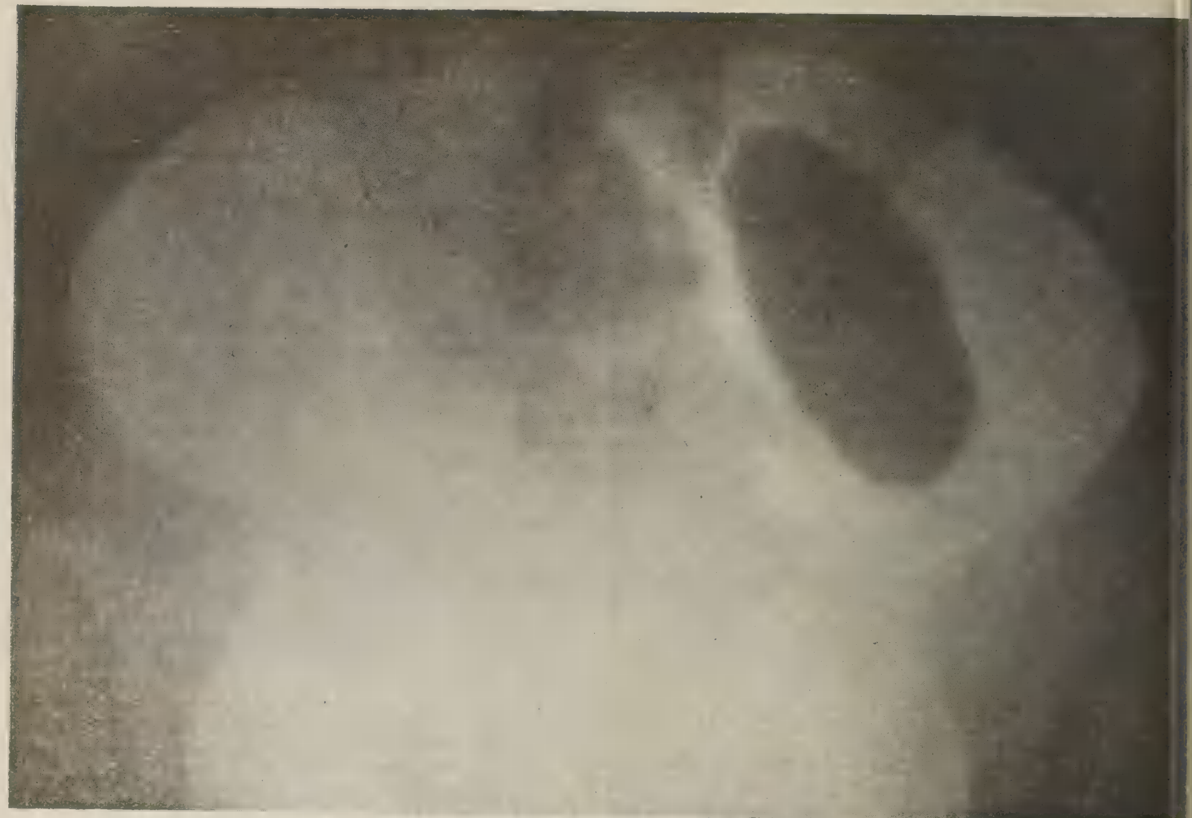
Regarding the after-history of this case I have no information beyond the fact that, about nine weeks after the above-mentioned manipulation, I met my recent patient, still wearing my splint, but quite happily dining, at a restaurant. I spoke to him, and he told me that he was doing all right, but that his neck still felt weak if he left off the splint.

A CALCULUS OF UNUSUAL SIZE

REMOVED FROM THE URETER BY OPERATION.

By FRANK KIDD, F.R.C.S. Eng.,
SURGEON TO, AND SURGEON IN CHARGE OF THE GENITO-URINARY DEPARTMENT, LONDON HOSPITAL.

I HAVE never seen a stone as large as the one here described removed from the pelvic portion of the ureter, and I should think it must be a record. A stone of such dimensions could hardly have developed in a normal ureter. The ureter was dilated because of the congenital stricture of its mouth, which explains how it became possible for so large a stone to grow therein. Apparently the kidney and ureter had become infected with a mild strain of staphylococcus, which had decomposed the urine and caused a deposit of phosphates which had developed into a stone; in other words, the stone was probably secondary not only to the stricture, but also to an infection.



X ray photograph showing actual size of calculus.

The patient, a young man of 18 years, was admitted to my wards at the London Hospital on August 31st, 1919. He had previously been seen by Mr. A. J. Walton, who very kindly transferred him to my care. In 1907 he had had a stone in the bladder, which had been crushed and removed. In 1908 he had had slight pains in the right loin. After that date he had had no more trouble until eight weeks before admission. At that time a dull, aching pain developed in the right iliac fossa, which lasted four days. A few weeks later the pain recurred and became more acute and was sufficiently bad to lead him to come up for advice and relief. He had never had increased frequency of micturition or any other symptoms.

On examination the urine was acid, contained no albumin, but a moderate haze of thin pus. The deposit consisted of red blood corpuscles, pus cells, ac phosphate crystals, and the *Staphylococcus albus.* T X ray examination showed a large oval shadow in t region of the upper portion of the right pelvic ureter, shown in the appended photograph.

On Sept. 4th I administered spinal anæsthesia. Wi the cystoscope I could see prolapse of the mouth of t right ureter, with cyst formation and intermitte ballooning of the cyst as the urine came down from t kidney. This, although a rare condition, is w recognised by urologists, and has been named "ureter cele." The primary condition is a congenital strictu of the mouth of the ureter, with secondary dilatation the ureter and prolapse of the dilated ureter into t bladder. By rectal examination the dilated uret could be felt, but the stone was too high up in the pelv to be felt.

Operation.—I cut down in the right groin through muscle-splitting incision 3¼ in. long, as described by m in THE LANCET of June 7th, 1913. The peritoneum wa pushed aside and the ureter identified at the pelv brim as a thin-walled dilated tube the size of a coil small intestine. The stone lay below the pelvic bri fixed to the side of the pelvis by peri-ureteric fibrosi The ureter was opened well above the stone by a longitudinal incision 1½ in. long, and pus and urin gushed out. The stone lay fixed in a large pouch; the upper end of the pouch was cut open and the stone was easily removed. Bougies could then be passed int the bladder. The wall of the ureter was re-stitched with fine catgut in two layers, a small tube was placed at the site of the stitching and brought out through the abdominal wound: the abdominal wound was stitched up with catgut in layers. The operation took 30 minutes.

Course.—A few drops of urine leaked from the tube for 24 hours: after that there was no more leakage, and the tube was removed. On the fourth day the stitches were removed; on the eighth day the wound had healed by first intention, except for the tube hole. The patient left the hospital on the sixteenth day, soundly healed and with no further symptoms. The stone measured 2¼ in. in its long diameter and 1 in. in its short diameter, and weighed 1 oz. It consisted of phosphates, with a trace of oxalates, and contained no cystin, no carbonate, and no uric acid.

Comments on the Case.

It is interesting to note how very few symptoms had been caused by the stone. As a general rule, the larger the stone the fewer the symptoms. Since I wrote my paper on the removal of ureteric stones I have seldom found it necessary to operate for stones in the lower portion of the ureter. Most ureteric stones in the pelvic portion of the ureter lie just above the bladder, and are prevented from entering the bladder by the narrowness of the opening of the lower end of the ureter. I find by experience that I can slit up the mouth of the ureter with a pair of operating scissors, through the operating cystoscope, lubricating the stone with parolene, and that a few days or weeks later these stones are passed naturally without any further trouble. In this case the stone was so large that it was clearly necessary to operate by open incision.

B. S. Barringer[1] describes a case of double ureterocele with a small stone lying in one of them. He cut off the top of the ureteroceles with the operating cystoscope, and the stone was then passed naturally. I have previously seen two cases of ureterocele; in one I treated the condition by open operation, and in the other I cut off the top of the projection through the operating cystoscope; on both occasions results were satisfactory. I hope to operate at a later date on the ureterocele present in the case reported here.

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[1] Transactions of the American Association of Genito-Urinary Surgeons, May, 1914.

DIVERTICULITIS.

Being some Remarks made in the Course of a Discussion at a Meeting of the Section of Surgery (Subsection of Proctology), Royal Society of Medicine, on Jan. 7th.

BY G. GREY TURNER, M.S. DURH., F.R.C.S. ENG.,
HONORARY ASSISTANT SURGEON, ROYAL INFIRMARY, NEWCASTLE-ON-TYNE.

MY first introduction to the subject under discussion was in the year 1903, when, as surgical registrar, I saw Professor Rutherford Morison excise what was supposed to be a malignant growth of the sigmoid in a man of 60. On examining the specimen I found that it was an example of diverticulitis. There were 13 diverticula, with great inflammatory thickening of the bowel wall, but no lesion of the mucous membrane. The man died, and at the post-mortem many diverticula were found from about the middle of the transverse colon to the point at which the sigmoid had been divided, but none in the lower segment of the bowel. The condition was at once recognised, and was correctly described in the hospital notes.

This case is of some interest, because it has been stated by Sir Berkeley Moynihan in his Cavendish lecture for 1912 that he operated in 1906 "upon the first case recognised as chronic diverticulitis of the sigmoid flexure in this country." I always regret that the example to which I have referred was not published at the time, for it would have stimulated an earlier interest in this particular subject. But there was really no excuse for ignorance in the minds of inquiring surgeons, for a well-illustrated abstract of the paper by Ludwig Schreiber appeared in the *Medical Review of Reviews* about that time, and in THE LANCET for Oct. 24th, 1903, Sir John Bland-Sutton wrote a most suggestive paper "On the Effect of Perforation of the Colon by Small Foreign Bodies, especially in relation to Abscess of an Epiploic Appendage."[1]

Since then several examples have come under my notice, and they have illustrated all the clinical conditions which have been described.

Description of Cases.

I would like to refer to three cases of particular interest.

The first is that of a female patient, aged 34 years, on whom I operated in 1904 for what was diagnosed as appendicitis with abscess.[2] I found a hard mass in the ascending colon which so closely simulated a malignant new growth that I thought it best to excise it. On examining the specimen I found the explanation to be an inflammation around a diverticulum in the commencement of the colon. There was also another quiescent saccule on the caput. No other diverticula were noticed in the large bowel during the course of the operation. The patient made a good recovery, and was living and well 15 years later.

The second case must be almost unique. It is that of a man 57 years of age who was admitted to the Newcastle Infirmary in the year 1902 suffering from retention of urine with general peritonitis. As it had not been found possible to relieve the condition by catheter an attempt had been made at his home to puncture the bladder suprapubically, but only liquid fæces escaped through the trocar. The man soon died, and at the post-mortem I found what I then took to be a malignant growth of the sigmoid, and just above this growth was a large hole leading into the bowel; there was fæcal extravasation with general septic peritonitis. On looking for an explanation I discovered, free in the recto-vesical pouch, a large gall-stone which had evidently ulcerated through the sigmoid just above the growth. An examination of the gall-bladder showed a second calculus projecting from that viscus into the hepatic flexure. The condition was interesting enough, and the specimen was put aside for further investigation, but amid an abounding wealth of pathological material it was neglected until the year 1908, when I was especially interested in the question of gallstone ileus. On re-examination I then found that the condition was a typical example of diverticulitis, and that there was no question of new growth. Unfortunately the specimen has been mislaid, but I am able to show you a drawing which was made at the time.

The third case shows that peritonitis may occur as the result of ulceration of even a small and almost isolated diverticulum, for in this patient only three such diverticula were found after a careful search of the bowel, cut in serial sections.

Ætiology, Diagnosis, and Treatment.

As regards ætiology, I have the conviction that the condition will ultimately prove to be congenital in origin. This is in accordance with the general origin of the diverticula with which we are familiar in the various parts of the alimentary canal and in the bladder. In one of my cases, a man who died from peritonitis and who presented diffuse diverticula in the large bowel (42 in number), there were also two large sacculi in the bladder in relation to the left ureter. At the time the latter were attributed to an enlarged prostate, but extended experience of vesical pouches has led me to realise that in many cases these are certainly congenital in origin. We must freely admit that in their early stages all diverticula are probably symptomless, but that they are progressive and tend to give rise to trouble in the course of years. In fact, the distension which precedes pathological symptoms may not be quite complete even in late life, and this was borne out by an example of diverticulum of the duodenum the size of a thumb in a woman of 60, in which the mucous membrane at the apex was so thrown into folds as to suggest that it was capable of very much freer distension than had ever taken place.

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[1] Since hearing Sir John Bland-Sutton's remarks at the discussion I have taken the opportunity of again carefully reading his paper, and find it full of renewed interest. There is an illustration of a diverticulum of the colon, and some of the cases were undoubtedly examples of diverticulitis, though the distinguished writer did not at that time divine what he now believes to be the correct explanation.

[2] A Case of Tuberculous Ulceration of the Ascending Colon Simulating Appendicitis, THE LANCET, Sept. 16th, 1905.

In the matter of diagnosis I have been struck by the very clear history which one can usually obtain *after* the event. In one case in which I excised the bowel under the impression that we were dealing with a malignant growth the man subsequently gave a wonderful history of recurring slight inflammatory troubles extending over a period of as long as ten years. A careful scrutiny of the histories furnish many points which help in the recognition of the earlier stages of the disease.

There is a further case bearing on the question of treatment which I should like briefly to mention.

It was that of a lady, 55 years of age, who gave a six months' history of pelvic inflammatory trouble, with severe pain of eight days' duration. A big tender mass was felt in the left side, and a diagnosis of tubal inflammatory mischief was made with some confidence. At the operation I found that the mass originated in the sigmoid, and after separating the adhesions sufficiently to allow of it being properly examined I detected multiple diverticula in the bowel higher up, giving a clue to its origin. The affected portion of bowel was too low down to excise safely and make an anastomosis, and I did not at that time think that the condition justified excision with a deliberately permanent colotomy, so I determined on the latter expedient in the hope that the rest would lead to such a degree of resolution that the continuity of the lumen could be restored safely at a later date. After the operation the lower end of the bowel was kept free by repeated irrigation, but an attempt to pass a tube from the anus to the colotomy, or vice versa, was never successful. Six months later the involved portion of bowel would easily admit the finger, so the colotomy was closed. The patient remained perfectly well for 18 months, the bowels being opened regularly and without any trouble. At the end of this time she developed a very definite obstruction which would not yield to ordinary measures, and I had to re-make the colotomy. After this the patient always took great care of the lower bowel, and in consequence kept very well for nearly five years, when she commenced to have a little discomfort, and occasionally to pass a quantity of mucus per anum. Just seven years from the original onset of her trouble she again developed an inflammatory condition round about the lower segment of bowel, terminating in a large abscess which pointed and was opened at the lower part of the abdominal incision. The bowel was carefully examined, but there was no sign of new growth, and once again the condition subsided, leaving only a small mucous fistula at the site where the abscess was opened.

As this interesting condition becomes better recognised cases will undoubtedly be brought before the notice of surgeons at a much earlier stage, and we will frequently be called upon to decide what to do when we are confronted with the uncomplicated condition, or with cases of mild recurring inflammation. Under these circumstances in one instance, in a man of 38, I inverted several diverticula and sutured over the peritoneal pocket so as to convert them into polypi; others were too rigid and could not be dealt with in this way, but the patient was given directions as to the necessity of regulating his bowels and for abstaining from food at the slightest sign of discomfort in the lower abdomen. This operation was carried out 18 months ago, and up to the present the patient has had no further symptoms.

Under similar circumstances in a more recent case I squeezed out the contents of one or two diverticula into the bowel, but I found that it was not possible to invert them, and the abdomen was closed. When opportunity offers I would certainly cover up any exposed sacculi with the neighbouring epiploical appendices.

Newcastle-upon-Tyne.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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A CASE OF

ACUTE HYDRO-PNEUMOTHORAX

COMMUNICATING WITH THE STOMACH.

By J. W. TUDOR THOMAS, M.B., B.S.LOND., M.R.C.S.,
CAPTAIN, R.A.M.C. (S.R.).

THE following case of acute hydro-pneumothorax, resulting from an old gunshot wound of the chest, is of interest on account of its peculiar features. The patient recovered in spite of a communication between the pneumothorax and the stomach.

The patient was an East African native soldier who had been wounded in the chest by a machine-gun bullet four and a half months previously. The bullet entered 2½ in. outside the left nipple line in the sixth left intercostal space and was taken out through the eighth left intercostal space, 5 in. from the spine. He had no hæmoptysis and was discharged to duty after three months in hospital. During the next six weeks he was quite well, until the last week or so, when he complained of pain in the left side of the chest. The pain became suddenly worse, with severe vomiting, and he arrived at our hospital about two days later in a state of collapse, with no pulse at the wrist and almost in extremis. On examination there was found to be a left pneumothorax, the apex beat being in the right axilla. A needle was inserted, much gas was let out and some fluid. This was repeated in an hour's time, and he was given rectal salines, &c. The next day the chest was again tapped and much air and fluid was let out. The fluid on examination was found to be from the stomach. Intravenous and rectal salines were given and still the patient had no pulse at the wrist.

The next day an incision was made under novocaine in the sixth left intercostal space, letting out the air and fluid. Exploration by the finger showed the lung to be adherent on the outer side near the bullet exit wound. The heart could not be felt, the finger coming up on the posterior surface of the sternum. Passing the finger over the dome of the diaphragm a rift was felt leading down to the stomach. Two rubber tubes were inserted to drain the cavity. Two days later the pulse was quite appreciable at the wrist, and it was decided to do a temporary jejunostomy. The patient could not possibly stand a general anæsthetic, so this was performed under a local anæsthetic, 0·5 per cent. novocaine being used. The fundus of the stomach was found to be adherent to the diaphragm over a large area. The jejunum was brought to the parietal peritoneum, and sutured to it, with a No. 10 rubber catheter inserted and held in position by a purse-ring suture. The pulse and respirations were 120 and 28 before and after the operation. A few days later, by direct observation through the chest wound, using a forehead mirror, the extent of the cavity was investigated, and on the patient swallowing a little water it was observed to flow into the cavity in the chest through the communication with the stomach. A week after the operation a little dilute methylene-blue solution by the mouth caused no staining of the dressings on the chest wound. At this time the patient had an attack of influenza, which was prevalent. He had severe headache, which was relieved in less than an hour by aspirin gr. x. given in milk by the jejunostomy tube. A fortnight later a little liquid food by the mouth was given and gradually increased, at the same time the feeds by the jejunostomy tube were decreased.

At the end of another fortnight the patient was getting a fair diet of milk and malted milk by the mouth, so the jejunostomy tube was removed, a dry dressing being applied. There was no excoriation of the skin around the wound, and in less than a month after removing the jejunostomy tube the abdominal and thoracic wounds were both soundly healed. As the jejunum was brought up to, but not through, the parietal peritoneum, on removing the tube the wound closed up and healed rapidly.

The patient made a complete recovery, took his ordinary diet without any pain or discomfort, and said he felt exceedingly well. The lung expanded and the cardiac apex beat returned to about the normal position.

I am indebted to Lieutenant-Colonel R. F. Standage, I.M.S., Surgical Consultant, East African Field Force, for his advice and assistance in this case.

CASE OF
SUDDEN COMPLETE PROCIDENTIA RECTI
IN A YOUNG ADULT MALE.

BY W. R. M. TURTLE, M.B., B.S. LOND., D.P.H.,
SENIOR ASSISTANT MEDICAL OFFICER, WHIPPS CROSS INFIRMARY, LONDON, N.E.

THIS case appears to be of sufficient interest to record, as I believe the sudden formation of a complete prolapse of the rectum to be very unusual in a young adult.

S. H., a male, aged 26 years, was admitted to the Whipps Cross Infirmary on August 26th, 1919, suffering from complete procidentia recti. The prolapse formed a firm, œdematous, egg-shaped mass, the long axis of which was 5 inches and the short 4 inches. Hæmorrhoids were present in addition.

The history of the case was that once, when a very small child, the rectum came down and had to be replaced by a doctor, but the patient himself had no recollection of ever having had any trouble of this nature, until suddenly, on the day previous to admission, during the act of defæcation, the bowel came down.

On August 27th the mucous membrane of the prolapse was commencing to ulcerate in places. On that day I excised the prolapse by the method, so clearly described in Cheyne and Burghard's "Manual of Surgical Treatment," for "excision of the entire prolapse, when the prolapse involves the whole thickness of the bowel." Hæmorrhage during reflection of the mucous membrane was free, and troublesome to control, owing to congestion of the mass from partial strangulation and the presence of hæmorrhoids. Apart from this the operation presented no difficulty. The peritoneum covering the bowel was stitched to the parietal peritoneum and the cut edge of the bowel to the skin at the anal margin. The external sphincter was, of course, not touched at the operation, and quite half of the internal sphincter was left.

The patient made a good recovery; the wound healed without suppuration. There was incontinence of fæces for a month, and then control over the sphincter gradually returned. Two months after the operation control was fully established. He was discharged from the infirmary on Nov. 19th.

I have to thank Dr. J. C. Muir, medical superintendent, for permission to send the above notes on this case for publication.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

THE APPLICATION OF WAR METHODS TO CIVIL PRACTICE.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 9th, Sir ANTHONY BOWLBY, the President, being in the chair.

The PRESIDENT gave an address on the Application of War Methods to Civil Practice, which will be found in full in the present issue of THE LANCET.

Discussion on the Address.

Mr. REGINALD VICK said that he had had an opportunity in Salonika of practising primary suture on compound fractures for a period of 18 months while at a general hospital on the Seres Road, to which large numbers of transport *accidents* were admitted. The invariable practice was to do primary suture on these cases, and the results were so uniformly satisfactory as to convince him that this method of treatment was as ideal as anything human could be and certainly as successful. The essentials for success were present—facilities for immediate operative treatment, a good theatre, and no reason for moving the patient until the wound and bones were healed. Since his return to England he had had the opportunity while working under Mr. G. E. Gask in the surgical unit, of treating all compound fractures admitted during their tour of duty. Primary suture had been performed in these cases, and where complete closure of the wound was possible the results were satisfactory. Where, owing to hæmorrhage, complete closure was impossible, secondary suture had usually been required at a later stage. In cases of compound fracture of the skull with the dura unopened, the end-results were excellent. It was important that operation should be performed at once, with complete removal of *all* damaged tissue and perfect splinting with subsequent immobility until healing was complete in cases of fractures of long bones. He had usually used ether in the final stages before closing the wound.

Sir CUTHBERT WALLACE remarked upon the difficulty in applying the Thomas splint in the case of women on account of their clothing. In fractures in civil life there was much more extensive injury to surrounding tissues than occurred in fractures under war conditions.

Mr. W. GIRLING BALL said that much had been done during the war in the bacteriological examination of wounds. In a series of 100 cases at the front treated by delayed primary suture 80 per cent. healed by first intention. Since his return he had endeavoured to carry out the same method of treatment. In the home hospitals cases were too often left to the inexperienced for treatment. This was difficult to avoid unless the house surgeon had been taught by someone who had actually carried out the method. He thought that large wounds such as were so often met with in civil practice were very amenable to treatment by primary suture.

Sir CHARTERS SYMONDS said that he had begun his war work in London, where men were arriving from the Aisne in a highly infected condition. In the case of severe fractures he kept the part in complete rest by putting it up in plaster-of-Paris. When the general inflammation had subsided in from four to seven days he removed the plaster. The wounds were generally found full of pus, but this seemed to act as an effective dressing. In the summer of 1916 he had employed first continuous and later intermittent irrigation. On his return to England he saw the cases from France, and noted the excellent results which followed primary suture. If the wounds were dry and free from pus it was possible to suture at once. He agreed that failure in the Carrel-Dakin method was due to defective technique. Asepsis should be perfect, and the wound should never be touched by the hands.

Mr. A. W. SHEEN said that in India they had received cases from Mesopotamia ten days after wounding. The wounds did not seem to be so infected as those in

France, probably on account of the dryness of the climate and non-cultivation of the soil. They were more like those seen during the South African War. He wished to see improvements in organisation as well as in treatment. The injured arrived at hospital in a very bad condition. In mines, works, factories, &c., there was little organisation for immediate treatment.

Surgeon-General A. **CORKER** said that he had been struck by the need for the universal teaching of first aid. In the army an endeavour was made to teach first aid to every officer and man. He had lately been on the committee of a school, and though all kinds of subjects were taught hygiene was not in the curriculum. He thought that first aid should be taught to the community at large.

EXHIBITION OF CASES.

Sarcoma of the Scapula.

Mr. **PHILIP TURNER** showed the case of Sarcoma of the Scapula in a man aged 46. The patient had first noticed and applied for treatment for weakness of the right arm. About the same time he had had tonsillitis. On examination a tumour of the scapula was found, together with enlarged axillary and supra-scapular glands. There was weakness and wasting of the muscles of the right arm. The right tonsil was much enlarged and ulcerated. Two or three weeks ago Mr. Turner thought there was new growth of the tonsil, but he now considered the condition was probably inflammatory, as the tonsil was smaller.

Fracture of Shaft of Left Humerus.

Mr. T. P. **LEGG** showed a case of Comminuted Fracture of the Shaft of the Left Humerus, with unusual nerve complications. The patient was a young man, aged 17, who was knocked down by a motor lorry and run over on Oct. 1st, 1919. On admission to hospital he was found to have a comminuted fracture of the left humerus, about the middle of the shaft, contusions of the left arm and thorax, and to be suffering from severe shock. He was blanched; the pulse was 130 per minute; there was left-sided abdominal pain and slight increase in the area of splenic dullness. These signs gradually abated, though the anæmia persisted for some time longer. The fracture was treated by extension in an abducted position on a "Thomas's ring splint." The signs of injury to the nerves were first observed about the twelfth to fifteenth day, inability to move the fingers being first noticed. On Oct. 24th the splint was removed, as union was taking place, and the arm placed between sandbags in a less abducted position. He was unable to flex the elbow and movements of the wrist-joint were absent. Massage was begun on Oct. 27th and electrical treatment on Nov. 3rd. On Oct. 17th the electrical reactions were tested. There was no reaction in the muscles supplied by the median or musculo-cutaneous nerves, nor in the muscles of the forearm supplied by the musculo-spiral. The reaction of the muscles supplied by the ulnar nerve was diminished. The deltoid reacted. Triceps was not tested. On Nov. 11th he was examined by Dr. S. A. K. Wilson, who reported "definite motor and sensory paresis (not an absolute paralysis of either) in the median, musculo-spiral, and musculo-cutaneous groups. The ulnar is relatively intact." On this date he was encouraged to begin to use his arm. On Dec. 9th the median nerve showed R.D. reaction, and the ulnar and musculo-spiral reacted to reduced faradic current. On the 29th the reactions were unchanged. He could flex the elbow to 90°. Treatment was still being continued.

SECTION OF SURGERY: SUBSECTION OF PROCTOLOGY.

DISCUSSION ON DIVERTICULITIS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 7th, Mr. J. P. **LOCKHART-MUMMERY**, the President, being in the chair, when Dr. W. H. **MAXWELL TELLING** read a paper on Diverticulitis, which appeared in full in THE LANCET of Jan. 10th.

Sir **JOHN BLAND-SUTTON** said that 30 years ago colic sacculi were mainly regarded as pathological curiosities, and our knowledge of their potentialities for evil was a direct result of surgical enterprise. His interest in them was aroused when trying to find an explanation of the phenomenon known as "spontaneous disappearance of abdominal tumours." This matter was discussed in the Royal Medico-Churnrgical Society in 1894 by Mr. Greig Smith, and increasing experience in abdominal surgery enabled Sir John Bland-Sutton to learn the part played by colic sacculi in producing localised swellings in the belly, which sometimes disappeared by expectant treatment, and the phrase "spontaneous disappearance of abdominal tumours" also disappeared from surgical phraseology when surgeons learned that acute and chronic diverticulitis, or sacculitis (names as ugly and cacophanous as appendicitis), mimicked many important lesions, especially acute and chronic appendicitis, cholecystitis, tumours of the stomach, sub-diaphragmatic abscess, perigastric abscess, splenic abscess, tubal infections, ovarian abscess, cancer of the uterus, and infected uterine fibroids. The extraordinary feature of sacculitis (or pericholitis) was its mimicry of cancer of the colon. In 1901 he excised the sigmoid flexure of a spinster aged 60 under the impression that it was cancerous. After the operation critical examination of the tumour proved that the supposed cancerous mass was a pericholic mass due to infection of a sacculus caused by a piece of straw. The patient recovered. This, with a case of epiploic abscess, was described before the Medico-Chirurgical Society of Nottingham in 1904, and full details were published in THE LANCET, 1903, ii., 1148. Since that date Sir John Bland-Sutton had seen and operated on many similar cases, and it was clear that in the past patients had submitted to colotomy and colostomy under the belief that they were suffering from colic cancer; subsequently the lump disappeared and the patients survived the operation many years, and at death there had been no evidence of tumour. This admitted of no doubt. Also cases were not uncommon in which a swelling is detected in connexion with the large gut, a diagnosis of cancer is made, and the patient is advised to submit to an operation, but he obstinately refuses, and in due course the swelling disappears, in spite of the gloomiest prognostications of physicians and surgeons of great experience and repute, and the patient lives to mock at his advisers. The disappearance of the mass was due to pus or the exudate finding a channel of escape. During the last ten years acute diverticulitis, especially in the lower abdomen, was recognised with the same certainty as acute and chronic appendicitis. The disquieting feature of these new things in abdominal surgery was the fact that as we grew older colic sacculi tended to increase in number, and as many as 200 had been counted on a colon. Thus diverticulitis was a newly discovered "bane of elders." As prevention was better than cure, it would be the duty of the family medical attendant to encourage men and women after middle life to have efficient sets of teeth and warn them against gobbling indigestible food or bolting hot and unpleasant morsels.

Dr. E. I. **SPRIGGS** referred to the work of Dr. Maxwell Telling and Dr. O. C. Gruner[1] in 1917, Dr. D. Roberts[2] in 1918, and Dr. J. W. Keefe[3] in 1917, on Diverticulitis, and said that the experience gained at Duff House supported the view that multiple diverticula could be recognised easily in X ray photographs of the colon, but such cases had not been found to be common. In the X ray examination of over a thousand alimentary canals diverticula of the large intestine had been seen six times. He had excluded between two and three hundred early cases from these figures, as they had not learned at that time the importance of taking photographs freely. The proportion of cases showing diverticula was doubtless understated by these figures, because in some cases the descending colon and sigmoid might not be completely filled at the times of examination; and if there were no bowel symptoms the opaque meal would not be repeated, nor would an opaque enema be given. Every effort was made, however, as a matter of routine, to see the descending colon and sigmoid when filled; and as the patient was staying in the same building as the X ray room this could usually be done. With good plates, when the little pouches were multiple and had reached the size of a small currant, they were easily seen. Diverticula in the early stages of their formation or diverticula which were few in number and were filled with fæces, or did not come into profile, might be missed; but if there were many of them, as there generally were, it was unlikely that none would fill with barium or show on the plate. As soon as they began to retain material longer than the bowel—that is to say, as soon as they were likely to be predisposed to inflammation—they were, if at all numerous, obvious; for the chain of opaque dots lying along the course of the empty bowel was characteristic. All of their cases showed retention of barium in the diverticula. Nine slides showing diverticula, from X ray photographs of six cases by Mr. Marxer, were then shown on the screen. Photographs were also exhibited on the walls. These six cases of unsuspected diverticula of the colon were all males, of ages varying from 53 to 71. One showed a single diverticulum on the plate; in the other five the diverticula were multiple and in three numerous. Two of them also showed one diverticulum in the terminal part of the ileum. In another there was a large single diverticulum, probably of a different nature, in the third part of the duodenum. The diverticula of the colon were thought to be simple extrusions of the bowel wall at weak places. It was to be noted that they occurred in those parts of the small and large intestine where the contraction of the muscle in the wall of the bowel might be supposed to be especially vigorous, with a corresponding increase of pressure in the lumen—namely, in the last few inches of the ileum and the latter part of the colon. One of the patients had suffered from severe constipation, four gave a history of moderate or intermittent constipation, and one had never been constipated. In four of the six there was no X ray evidence of delay in the bowel. In two there was such evidence, the opaque material not having passed through the colon in 72 hours. (The rate of passage of the buttermilk meal was quicker than that of some other opaque meals. With buttermilk 48–72 hours was regarded as a normal time.) In one case there was general hypertonus of the large bowel, and in one case hypertonus of the pelvic loop. The series was small, Dr. Spriggs said, but he brought it forward, firstly, to show how well diverticula could be recognised by the X rays; secondly, because it was an early series. Not one of these patients had any symptoms clearly attributable to the diverticula which were seen. He would, of course, in view of the risks they run, keep in touch with their medical advisers. In all the diverticulum-bearing area of the bowel was freely movable. The cases included two of chronic appendicitis (one of them with arterio-sclerosis), two of duodenal ulcer, one of gastric hypoacidity, and one of neurasthenia following a chronic infection. The last-mentioned patient had not been heard of recently. The other five recovered, and four of them were following active occupations.

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[1] Brit. Journ. Surg., 1917, iv., 468-530.
[2] Surg., Gyn. and Obst., 1918, xxvi., 211.
[3] Am. J. Obst., 1917, lxxv., 252.

Mr. W. MCADAM ECCLES showed a specimen of Part of a Pelvic Colon which had been divided longitudinally to show numerous diverticula and a marked narrowing of its lumen due to fibrous thickening of the wall. One diverticulum at its upper extremity, larger than the others, had a narrow neck and bulbous extremity, which appeared to pass into an appendix epiploica. Microscopically there was no evidence of malignancy, but an extreme degree of chronic inflammatory change. The diverticula were lined by normal mucous membrane. The specimen had been removed from a somewhat obese man, aged 74, who had been troubled for more than a year by chronic constipation and flatulence. The motions had never contained blood, but were always much flattened. A movable elongated tumour had been felt in the left iliac fossa and was regarded as carcinoma. The mass was excised and an end-to-end anastomosis was performed. No enlarged glands were found and recovery was complete. He thought that diverticula were congenital, that at birth there was a minute commencing protrusion. At the site of the diverticulum there was generally a circle of blood-vessels which ran up into the appendix epiploica, and therefore a possible hiatus. Diverticulitis occurred nearly always in men, not always in those subject to constipation. In many cases intestinal gas was present, the anal sphincter was active, and there was, in consequence, backward pressure, which was most felt in the pelvic colon. With regard to the differential diagnosis from cancer, it should be remembered that in diverticulitis hæmorrhage was very rare, whereas in carcinoma it was pretty constant.

Mr. G. GREY TURNER also took part in the discussion. His paper appears in full in the present issue of THE LANCET.

Mr. RUTHERFORD MORISON said that for centuries certain deformities of the blood-vessels and urinary bladder had been recognised and described as sacculi. Sacculated aneurysms, sacculi of the veins, and sacculated bladders had been, for all this time, acknowledged conditions, so that they had the hallmark of tradition. It was now known that all the hollow viscera might be similarly affected, but confusion had arisen because these protrusions had been described as diverticula. Sacculation of the colon had been described by anatomists as its normal condition, but this difficulty could be got over by regarding ordinary sacculation as normal, and acquired sacculation as pathological; this was easier when it was remembered that that part of the colon, the sigmoid loop, which was most generally affected by pathological sacculi, was at times almost devoid of the normal sacculation. The name was of great fundamental importance, because it involved a principle on which the progress of surgery depended. If each small part of the body was to be considered as the possessor of diseases peculiar and special to itself, then all real advance was impossible. The same pathology was applicable to all parts of the body, and in similarly constituted parts of it even the smaller details of disease were in essential qualifications alike. The signs of resistance of the tissues to their enemies (pathology) were relatively simple in their manifestations when compared with anatomical and physiological problems. Another reason for his objection to the term "diverticulitis" was that since Meckel's diverticulum was known the name had had a special significance. This anomaly was of congenital origin; all coats of the intestine entered into its composition; it had a special vascular supply of its own; it was single, and it was found at any age. These qualifications were common to all the ordinary intestinal diverticula, such as the vermiform appendix and those associated with pancreatic outgrowths. The sacculi were not of congenital origin but were acquired; their walls were thin and not composed of all the coats of the intestine; they had no special vascular supply; they were multiple, rounded in shape, and were almost limited to elderly people; they had been found in all of the hollow viscera and were of an importance not yet fully recognised. There was the same difference between a sacculus and a diverticulum as there was between an acquired and a congenital hernia. The only excuse for confounding them was that the pathology of both was the same. Both might harbour fæcal concretions or foreign bodies, and inflammation in them led to the same results—gangrene and perforation and general peritonitis, ulceration and sloughing with abscess formation, or inflammatory thickening and fibrosis, closely resembling a malignant growth of the bowel. The last condition was described, especially by American authors, as peri-diverticulitis; it was an important condition, but not special to the colon. It might be found in a portion of intestine reduced after strangulation; it had been found in the stomach (and called *linitis plastica*); it occurred in the skin (and was called keloid or pseudo-keloid); it occurred in the cæcum (and when due either to subacute sepsis or to tuberculosis was apt to be called hyperplastic tuberculosis). In all it was difficult to distinguish clinically and in some pathologically from cancer; in all it might be due to subacute sepsis, to tuberculosis, or to cancer.

Mr. HAMILTON DRUMMOND said that during a period of 18 months he had examined the intestines of all the bodies upon which post-mortem examination had been made in the Royal Victoria Infirmary, Newcastle-on-Tyne, about 500 in all, with a view of investigating the ætiology of pathological sacculi of the large intestine. During this period he had met with 22 specimens showing a marked condition of pathological sacculi, and these were from the bodies of people who had died from causes unconnected with the intestinal lesion; in many cases the sacculi were found in the pelvic colon only. It was an interesting and somewhat remarkable fact that in five of the cases in which sacculi were found in the colon there were also sacculi in other hollow viscera; in four cases there were sacculi in the small intestine, the opening appearing between the leaves of the mesentery; and in one case there were multiple sacculi in the bladder wall. This tendency to diffuse sacculation would seem to have an important bearing upon the causation of sacculi of the colon, as it suggested a more or less general weakness (perhaps congenital) of the non-striated muscle tissue throughout the body. Stress had been laid upon venous congestion as a predisposing cause, but many of the bodies examined when searching for cases of sacculi were those of elderly people with chronic heart disease and marked back pressure, and in none of these were sacculi found, a fact which did not support the venous congestion theory. Intestinal obstruction was another cause put forward in attempting to explain the development of sacculi, but in only two out of the 22 cases referred to could obstruction be said to be a factor, and these were typical ring cancers with well-marked sacculi above the growth. An examination of the specimens procured during the investigation demonstrated that the sacculi almost invariably took their origin between the mesocolic and one of the lateral bands, and frequently opened into the appendices epiploicæ. They were rarely found in the leaves of the mesentery or on the antemesenteric aspect of the gut. The appearance of pathological sacculi at these definite points in the bowel wall might be accounted for by the anatomical distribution of the vessels, for numerous microscopical sections pointed to the great frequency with which these sacculi pushed their way along the course of vessels. This fact had been pointed out many years ago by Klebs and Graser.

Mr. HAMILTON DRUMMOND then showed some drawings of pathological sacculi of the colon, with special reference to the position at which the sacculi made their appearance through the bowel wall. Microphotographs were shown illustrating how sacculi followed in the line of the vessels and tended to push their way towards the mesentery of the bowel; other microphotographs showed typical examples of how pathological sacculi open into the appendices epiploicæ; also the marked atrophy of the bowel wall in the actual herniated portion of the gut. All drawings and microphotographs were obtained from post-mortem room specimens, death being due to some other cause than the intestinal lesion.

Mr. GARNETT WRIGHT reported a case which was an example of colico-vesical fistula due to diverticulitis.

Mr. R. P. ROWLANDS said that during the last ten years he had operated upon eight cases of diverticulitis of the colon and one of the duodenum. Three of these operations were for peritonitis, due to perforation of a diverticulum.[4] The remaining five were for intestinal obstruction, the first two of which have already been published in THE LANCET.[5]

The first case was that of a very feeble, thin, anæmic lady of 60, who had suffered from constipation all her life. Mitral regurgitation was present, and there was almost complete intestinal obstruction, with œdema of the legs and ascites. Carcinoma of the sigmoid colon was suspected. The colon, from the splenic flexure almost to the rectum, was rigid, very thick and inflamed, and almost solid. She was too ill for resection. A short circuit was made with difficulty between the ileum and the lower part of the pelvic colon. For over a year she suffered from flatulent distension and looseness of the bowels, but secondary resection was declined. Gradually the diarrhœa ceased. Ten years later she was reported to have had no serious or acute affection of the bowels since the operation, though there was still flatulent distension and constipation.

In cases 2 and 3, men of 49 and 40, resection of 6 to 8 in. of the pelvic colon was performed for what appeared to be malignant disease. It was only after the operation in each case that an accurate diagnosis was made and the diverticula found after opening the bowel. Microscopic examination revealed the absence of carcinoma. In each case there was stenosis, with a definite tumour the size of a hen's egg. Both patients had rigors before the operation. They had remained in good health and had been able to work hard for nine years. In one case resection with immediate end-to-end union was adopted, and proved most satisfactory.

The fourth case was that of a lady of 60 who had had many attacks of pelvic peritonitis during 20 years. Appendicectomy had been performed elsewhere and a tumour then discovered in the pelvic colon. Three years ago several diverticula containing calculi were removed from the pelvic, iliac, and descending colon, and the tumour, localised to the anterior wall of the pelvic colon, was incised and found to contain two diverticula full of pus. These were excised and the bowel closed. The patient remained well for a year, but since then had had several milder attacks which had not been severe enough to call for further operation. The case illustrated the well-known difficulty of finding and removing all the diverticula, and pointed to cylindrical resection of the diseased segment of bowel as the operation of choice.

The fifth case was that of a man of 40, who had also suffered from many attacks of pelvic peritonitis supposed to be due to appendicitis. Four years before he was seen by Mr. Rowlands he had developed a colico-vesical fistula, and was told that he had inoperable cancer of the bowel. He was in a poor state of health and very depressed. The fistula was closed by laparotomy. It was between the middle of the pelvic colon and the left side of the bladder. The openings in the bladder and colon were closed and inverted. There were extensive adhesions in which were pockets of pus. The patient died a week later of pelvic peritonitis and pericarditis. No diverticula were found at the operation, but several were found from within the lumen of the bowel after death.

In such a late and difficult case the speaker thought it would be wise to start with a preliminary colostomy. This would immediately relieve the very troublesome cystitis and sepsis and make the subsequent operation easier and safer. Mr. Rowlands urged: (1) The importance of keeping diverticulitis of the colon in mind when operating for stricture of the colon. (2) That early resection with end-to-end union was the operation of choice. (3) That temporary colostomy was indicated in late or complicated cases, especially when distension could not be overcome before operation or a colico-vesical fistula existed. (4) That in some late cases a short circuit might be made, with subsequent resection if necessary. Preferably the transverse colon should be joined to the pelvic colon. The transverse colon was generally healthy and low in these obstructive cases. The subsequent resection was thus made easier and more satisfactory. Failing the transverse colon, the ileum or cæcum might be joined to the pelvic colon. (5) When temporary colostomy was performed it appeared wise to make the opening only a little above the stricture, so that it could be removed with the stricture at the second operation and a third operation thus avoided.

The discussion was adjourned until Wednesday, Jan. 14th, at 5.30 P.M.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

EXHIBITION OF CASES.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 6th, Mr. E. MUIRHEAD LITTLE, the President, being in the chair.

Coxa Vara.

Mr. R. C. ELMSLIE showed a case of coxa vara in a boy aged 9 months. There was a history of "cross-birth"; one leg was brought down (it was not known which), the left arm was fractured, the left leg was "black and blue." The child was brought to hospital in December on account of shortening of the left lower limb, which proved to be half an inch shorter than the right. The femur was bowed forwards and outwards in its upper part, and abduction of the limb was very limited. X ray examination showed that the femoral neck formed about a right angle with the shaft, and that the latter was convex externally immediately below the great trochanter. The epiphysis of the head and the neck of the femur were normal. The pathological anatomy differed from that of the form of coxa vara usually seen in young children, but the appearance might explain certain rare cases of coxa vara with a right-angled neck. The treatment indicated was osteotomy of the femur through the great trochanter, and abduction of the lower fragment into line with the upper.

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[4] The Operations of Surgery, vol. ii., p. 437.

[5] THE LANCET, 1910, vol. i., p. 1194.

Osteitis Deformans.

Mr. E. **LAMING EVANS** showed three cases. The first was that of a woman aged 48, who came under his care at the Royal National Orthopædic Hospital in 1919. In 1910 she knocked her left leg against a form; a swelling formed, accompanied with slight aching pain. The swelling had got gradually larger since that date. In 1918 it suddenly increased in size, with exacerbation of pain. She was admitted into a general hospital in London. Wassermann's test proved negative on two occasions. After six weeks' observation and rest an exploratory incision was made into the tibia; since that date the pain had increased. There was now a uniform thickening of the upper two-thirds of the left tibia with a well-marked anterior curve; the left tibia was half an inch longer than the right. X ray examination showed a uniform absence of definition of cortical and cancellous bone in the upper third, together with obliteration of the medullary cavity. The middle third showed, in addition, a density suggesting cystic formation, with sequestra. For the last 15 months she had complained of pain in the back of the head and neck; the occipital region was tender, so that she avoided lying upon the back of the head. She thought the head had increased in size. The occipito-frontal circumference was 21 in. An X ray examination of the skull showed thickening of the occipital and parietal bones. He regarded this as a case of osteitis deformans, and thought it worth bringing to the notice of the section for the following reasons: (1) the definite traumatic origin; (2) the limitation, after nine years, to a single long bone; (3) the anterior curvature of the affected bone, whereas the usual curvature was antero-external; (4) the actual lengthening of the affected bone; (5) the interval of eight years from the commencement before involvement of any other region, and subsequent involvement of the occipito-parietal.

Mr. **ELMSLIE** agreed that the case was one of Paget's disease. He would accept all the phenomena as evidences of Paget's disease, but the appearance suggestive of a cavity with sequestrum raised a difficulty, as similar phenomena occurred in osteomyelitis. The skull changes, however, were sufficient to make the diagnosis certain.

Fracture of Right Carpal Scaphoid Bone.

Mr. Evans's second case was that of a man, aged 39, with fracture of the right carpal scaphoid bone. In 1917, whilst pushing down the handle of a motor, the engine back-fired, and, as the handle was not released, the patient received the thrust of the back-fire through the wrist-joint. He had only done a little light work since that date, and the disability would appear to be out of proportion to the physical signs. There were now slight swelling over the carpus, tenderness and pain over the scaphoid. The grip was fair except in certain positions of dorsal extension, when the hand became powerless. The power of dorsal extension was poor, and the extreme limits of movements in all directions were restricted. X ray examination showed a partially united fracture through the neck of the scaphoid, with arthritic changes between the scaphoid and os magnum. The cause of the fracture appeared to be of the nature of a crush between the down-thrust of the forearm and the up-thrust of the starting-handle. If at the time of the back-fire the handle was held with the hand deviated ulnawards, the head of the os magnum was directed towards the neck of the scaphoid, and, acting as a wedge upon its weakest point, produced a fracture in the region of the neck. If the hand was directed radialwards the head of the os magnum crushed upon the semilunar, and produced a subluxation or luxation.

Mr. C. **MAX PAGE** agreed that this injury was often in the nature of a crush fracture. He had recently had two cases in which the scaphoid had been broken as the result of a back-fire. He considered that when pain and disability persisted operative removal of the fragments was the proper course, and in his experience had given satisfactory results. After operation the wrist should be put up in a position of extension.

Dupuytren's Contraction.

Mr. Evans's third case was one of Dupuytren's Contraction affecting the ring finger of the right hand in a man aged 32. It appeared to be consecutive to a traumatic arthritis of the first interphalangeal joint, caused by the fall of the roof of a dug-out in 1915.

Mr. **PAGE** had observed the use of fibrolysin in a good number of cases both by local and by intramuscular injection. He had formed the opinion that the injection had no influence on existing scar tissue in these cases, and was of very doubtful value in the prevention of a recurrence of the deformity. He considered that after operation a return of the contracture could only be prevented by the wearing of an extension splint at night for a year or more.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held on Jan. 2nd and 3rd at the University of Manchester, where the first meeting was held on July 14th, 1906. The chair was taken by Professor H. R. Dean, and the society was hospitably entertained by the Pathological Society of Manchester.—Sir Kenneth Goadby (London) discussed a large number of cultural and microscopical examinations he had made of old war wounds. Bacteria, he said, might remain latent for an extraordinary long time; they did not necessarily cause any local tissue reaction, and most of the sporing anaerobes occurred in the vegetative phase.—Dr. J. H. Dible (Manchester), from a study of about 150 strains of intestinal streptococci, showed how on the average various properties (heat resistance, fermentations, &c.) were associated in such a way that it was possible to dissect up the very unsatisfactory group of the enterococcus and its allies along practically useful lines.—Dr. J. C. G. Ledingham showed that by inoculating rabbits with the excreta of lice infected with trench fever it was possible to obtain sera which would agglutinate emulsions of the Rickettsia.—Dr. A. H. Miller (Sheffield) demonstrated the nodular tubercle bacilli which he obtained by using a median containing sperm oil.—Professor Dean described a small epidemic of Flexner Y dysentery in the surgical wards of a children's hospital with several fatalities. One of the [illegible] infected its own family and one living next door on its return home.—Professor A. E. Boycott dealt with some of the difficulties in making single-cell cultures with the degree of certainty necessary in investigating the transmutation of bacteria. He also detailed experiments on the killing of tadpoles by heat, and contrasted the results with those of similar trials with bacteria.—Dr. J. Holker (Manchester) exhibited a very convenient apparatus for measuring the opacity of liquids, and gave an account of a philosophical study of what happens when antigen serum and salt solution are mixed in the Wassermann reaction.—Dr. J. Cruickshank (Dumfries) described his experience with the gold sol test of the cerebro-spinal fluid; he had found it of great value in the diagnosis of general paralysis. He also detailed a number of curious observations showing that solutions of lecithin in ether, &c., had a special capacity for extracting dyes and some inorganic salts from watery solutions which was not shared by lipoids in general.—Dr. A. G. Gibson (Oxford) found that a positive Wassermann reaction might appear at very variable times after a provocative dose in persons who were suspected of being cured.—In an original communication Dr. C. Powell White (Manchester) discussed the application of statistical methods of correlation to the interpretation of urine analysis, and made out a good case for the utility of the method in discovering the actual combinations of acids and bases secreted by the kidney.—Professor E. Emrys-Roberts (Cardiff) detailed a number of cases of infected wounds in which very good results had followed the exhibition of normal horse serum subcutaneously.—Professor Dean exhibited a case of cancer, probably of a bronchus, with a large number of cystic metastases.—Dr. Clara Stewart (Leeds) and Dr. A. Leitch (London) both dealt with the migration or metastasis of adenomyomatous uterine tumours; and Dr. W. E. Hume and Dr. A. F. B. Shaw (Newcastle) gave a full account of a fatal case of splenomegalic polycythæmia, in which opportunities for post-mortem examination seldom occur.—Professor M. J. Stewart (Leeds) put in a plea for the more extended use of the polarising microscope in pathological histology, and showed how useful it may be for finding sutures and ligatures in tissues.—There were a large number of interesting exhibits.

Reviews and Notices of Books.

WAR DISEASES AND PENSIONS.

By R. M. WILSON, M.B., Ch.B., Temporary Captain, R.A.M.C.; and W. M. T. WILSON, M.B., Ch.B., late Temporary Captain, R.A.M.C. With a chapter on the Diagnosis of Malaria by Major ERNEST BLACK. London: Oxford University Press. 1919. Pp. 71. 3*s.* 6*d.*

THIS small manual is an attempt to guide the footsteps of pensions boards along right channels, and with this object in view is didactic in style and expression. Its main purpose is to combat the snare of symptomatic diagnosis, especially that of "D.A.H.," a term which is still, we fear, loosely applied without any sufficient attempt to discover the basis of the symptom. The pensioner is in consequence incorrectly labelled as a "heart case" and becomes a perpetual worry to the examining officer as well as to himself. At one board he may complain chiefly of his heart, at another of his aching limbs, at a third of his indigestion or headache, and so on. The authors of the manual believe that at least half a million such misfits in diagnosis are going about the country.

Having given a concise description of the nature of "D.A.H.," the writers go on to suggest the relation between various toxic states and this condition, showing how the symptoms vary: (*a*) with the degree of infection and (*b*) with the amount of effort or excitement called for. Tremors and hyperidrosis are, they find, strongly suggestive of trench fever, and the usual symptoms of neurasthenia, commonly laid to the charge of "shell-shock" alone, are here ascribed to an initial toxic origin. The authors' dogmatism on this point will doubtless bring into the field those who hold a contrary view, who may begin by throwing a doubt on whether trench fever is really as common in this country as the authors suggest. There can be no question, however, that cases of chronic trench fever are often carelessly diagnosed as tuberculosis; this is an everyday experience of pensions boards.

The frequency of a systolic apical murmur and a displacement of the apex beat outwards to the nipple line in "D.A.H." cases are cited, and attention is drawn to the researches at Mount Vernon Hospital, which showed that there is no true dilatation in these cases. The differential diagnosis of auricular fibrillation and extra-systoles by means of the exercise test is described, but the authors are inclined to discount the value of this test as a means of estimating the poisoning of the cardiac nervous system, and prefer to substitute the effect of a long and deep inspiration. Their conclusion is noteworthy:—"No man should be pensioned for D.A.H. Pensions should be awarded for malaria, trench fever, dysentery, and so on—that is to say, for the fundamental infections which cause D.A.H."

The clinical features of trench fever, malaria, and dysentery are concisely recorded, and a valuable chapter by Major Black is devoted to the treatment of malaria. In most cases of malaria sèvere dyspnœa on exertion is not a common feature, and the presence of an added dysenteric infection should be excluded by the examination of the stools for the *Entamœba histolytica*. A few useful hints on the assessment of the degree of disability are added.

The authors of this volume are to be congratulated on the production of a timely and helpful book, which will afford aid to those engaged on pensions boards and to the general practitioner who is called upon to deal with the soldier invalided on account of one or other of the diseases of war.

A HANDBOOK OF GYNÆCOLOGY.

By BETHEL SOLOMONS, B.A., M.D. Dub., F.R.C.P. Irel., Gynæcologist, Mercer's Hospital, Dublin, &c. London: Baillière, Tindall, and Cox. 1919. Pp. 12+236. 10*s.* 6*d.*

THIS little book consists mainly of notes of the author's lectures. He has written it because he believes that the student requires a small book to help him in his practical work. The book contains a good deal of useful information, but we do not think that the author has been happy in the selection of his material. It seems a pity when so little is known about menstruation to mention the latest theory, for which it is admitted there is not much experimental proof, and to leave out others, many of which are much more probable. Dr. Solomons calls attention to the fact that the nomenclature of certain tumours of the tube is very unsatisfactory. If this is so, then surely in a book of this scope it would have been wiser to omit the list of such tumours, which is given without a word of explanation. The recommendation to give every woman a vaginal douche before a pelvic examination cannot be intended for ordinary practice; it is unnecessary and, indeed, is impracticable in the majority of cases in private practice. The fact that the membrane in cases of imperforate vagina is not the hymen is not called attention to. Cysts of Gärtner's (sic) ducts are said to be single, when not infrequently cysts of Gartner's ducts are multiple. The recommendation to remove a fibroid polypus with a pair of clip forceps in the majority of cases would be quite impracticable; nor can we agree that in the removal of a large tumour of this kind the cervix should be slit up; why cut the patient when it is quite easy to cut the tumour? The author exaggerates, in our opinion, the danger of using a repositor in treating cases of inversion; when used properly, this instrument has been proved in considerable numbers of cases not to be at all dangerous.

NEOPLASTIC DISEASES.

A Text-book on Tumours. By JAMES EWING, A.M., M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 1027. £2 2*s.*

IT is usually taught that neoplasms may be classified according to their morphological and biological characters, with little or no reference to the organs or parts of the body in which they grow. All carcinomata are regarded as fundamentally identical, whether they occur in the tongue, the rectum, or the breast; and the solution of the "cancer problem" as a whole is sought for rather than the ætiology of any particular form of tumour. Professor Ewing, however, believes that new growths are susceptible of a much finer analysis, and in this excellent work his aim has been to analyse and differentiate the various types of neoplasms, to enumerate and contrast the more striking clinical features characteristic of different tumours, and to consider the ætiology of individuals rather than the type.

The book is divided into two main parts, the first of which treats of general oncology, and includes a good historical survey, and chapters on general pathology, malignancy, metastasis, the chemistry of tumours, ætiology, and experimental research. The second part, which is by far the larger, deals with special oncology. Here, while the simpler connective-tissue tumours are considered separately, and there are special chapters on endotheliomata, sarcomata, and carcinomata, the author, true to his conception of malignant disease, takes the various organs in turn, and discusses in detail the neoplasms which may be found in them. The final chapter, on Teratology, gives a résumé of this branch of the subject, and, though brief, is adequate, since the commoner teratomata are described elsewhere according to the organs in which they occur. There is a very complete bibliography, the references being conveniently grouped according to chapters at the end of the book, with page numbers in heavy type; and the index leaves nothing to be desired.

There are 479 illustrations, nearly all from photographs. The majority of these are successful, but the details of some of the microscopical preparations would have been more satisfactorily shown by drawings. Some of the figures are, we think, likely to confuse the student. It is surely unfortunate that the first illustration in the chapter on Fibroma should be of a benign pigmented fibro-epithelial wart which bears no resemblance at all to a fibroma; and the student who has been taught to consider Paget's disease of the breast as a chronic inflammation of the nipple ssociated with a mammary cancer may well rub his yes to find this condition illustrated by lesions of the kin of the buttock. It is, however, impossible to rovide at one and the same time for the beginner and he expert, and though the former may not appreciate, he latter will be grateful for many of the rare and nteresting conditions which are figured.

Professor Ewing has produced a book which will, we hink, be recognised as the standard work of reference n this subject in the English language for many years o come. His knowledge of the literature is immense, nd he has drawn upon it freely, so that, although the ook is based on his own experience, practically every age contains references to the work of others. It is emarkable that such a stamp of individuality should ave been retained in so broad and catholic a survey of he subject. The author holds definite views on many isputed points, and, though some may differ from them, ll will acknowledge the fairness with which they are resented. The chapter on Endotheliomata illustrates his as well as any other. The history and present osition of the controversy which has ranged over these ifficult tumours are admirably set forth; and though rofessor Ewing acknowledges himself a believer in the ndothelial origin of a wide variety of tumours, he akes no attempt to belittle the difficulties of proving t. He holds that it is possible to recognise the eoplastic endothelial cell, but on p. 300 this cell is escribed as possessing "a small, pale, vesicular nucleus ith minute multiple nucleoli," while on p. 302 it is said o have a "pale nucleus devoid of nucleoli."

The importance of chronic irritation in the ætiology f malignant disease is now universally recognised, and rofessor Ewing rightly lays great stress on it. We hould be inclined to join issue with him, however, on he question whether a single trauma, as distinct from ong-continued irritation, can initiate the malignant rocess, and we think his views as to the occurrence f a definite "pre-cancerous stage" will be exposed to n even more critical examination. So far as we know, here are no histological tests by which we can ecognise the actual development of malignant properties n an epithelial cell, and the early stages in the formaion of a sarcoma are, if possible, even more obscure. he pathologist may find it difficult enough to deterine from a section whether he is dealing with a alignant process or not; if, in addition, he has to ultivate the gift of prophecy his task will become an npossibility or be reduced to a mere pious expression f opinion.

Such a book as this will prove invaluable to the dvanced worker, but its very merits render it less seful to the student. The philosophic outlook and ck of dogmatism are, we regret to think, properties hich will militate against its success as a mere textook; but we have no doubt that it will achieve a much igher position in medical literature, and we cordially ongratulate Professor Ewing on the success which has ttended his labours.

A RACHIANESTHÉSIE GÉNÉRALE.

By Professor THOMAS JONNESCO. Paris: Masson et Cie. 1919. Pp. 182. 4 francs.

Professor Jonnesco has condensed in the present mall volume his experiences of 11 years of work on pinal anæsthesia. He was engaged upon a big work hen the war separated him from his manuscript, his tatistics, and his papers generally, the fate of all of which n Bucharest is still doubtful. Professor Jonnesco is, of ourse, a whole-hearted advocate of spinal anæsthesia, elieving it to be the best available method for procuring næsthesia during operation on any part of the body. Iis method consists in the injection of stovaine and trychnine into the subarachnoid space at one or more f four different sites according to the seat of operation. hese sites he calls the medio-cervical, the upper orsal, dorso-lumbar, and lumbar, and their position is ufficiently indicated by their names. The dosage is aried according to the height in the spinal column at hich the injection is made and according to the condiion of the patient. Failure to observe these conditions ith sufficient care accounts, according to the author, r such failures or fatalities as have occurred.

The high punctures have been made on more than 1000 occasions by the author and colleagues and pupils in Roumania. In his own practice there has been no fatality. The alterations in respiration which occur after high punctures are important and are described in detail; they differ according to whether, before injection, the patient is breathing by abdomen or thorax alone, or by both. The paralysis of breathing that occurs is due to effects on the cervical nerve-roots and not on the bulbar centres, and is of so short a duration that, treated by artificial respiration, it leads to no harm. The anæsthesia produced is a true analgesia—an obliteration of all pain sensations, but not of those of touch and of heat and cold. The author writes with enthusiasm, and his results, as stated, bear out his claims, but when he draws a comparison between inhalation anæsthesia and his own method it is obvious that the best results of the former method have not been at his disposal to compare with the best performance of the latter.

A COMPLETE SYSTEM OF NURSING.

By A. MILLICENT ASHDOWN, Examiner in Nurses' Practical Work to Guy's Hospital. London: J. M. Dent and Sons, Ltd. 1919. Pp. 746. 12s. 6d.

THIS comprehensive text-book was originally the work of Miss Honnor Morton, but it was entirely rewritten and illustrations added by Miss Ashdown in 1917. The latter has made it her object to produce a book which deals with every branch of her profession without going into such detail as would have made the volume unwieldy. A short account of the nature and treatment of a large number of diseases is given, though the author is emphatic in stating that it is not her intention to encourage nurses to act on their own responsibility "except under circumstances of extreme urgency." The text is well illustrated, for the most part with original pictures, which demonstrate methods of bandaging and bed-making, instruments and their application, and various typical temperature charts. The text has been carefully compiled and has a good index. Among the additions made in the revised 1919 edition is an account of the treatment of burns with wax.

The volume is brought thoroughly up to date, and will be widely read, not only by practising nurses and probationers, but also by health visitors and those numerous V.A.D.'s who are anxious to make use of their war experience in wider fields of service.

JOURNALS.

Parasitology. Edited by GEORGE H. F. NUTTALL, F.R.S., assisted by EDWARD HINDLE, M.A., Ph.D. Vol. XI., Nos. 3 and 4, October, 1919. Cambridge University Press. Price 25*s.* net, yearly subs. £1 15*s.*—Intestinal Protozoa Found During Acute Intestinal Conditions amongst Members of the Egyptian Expeditionary Force, 1916–1917, by F. W. O'Connor, comprises observations made by the author when employed as protozoologist to the field laboratories during the latter part of 1916 and 1917. A record is given of the various species of protozoa found in the stools of both white and Indian troops and members of the Egyptian Labour Corps suffering from dysenteric or diarrhœal conditions, and also of the parasites found in the stools of Egyptians not complaining of illness. *Entamœba coli* was the most prevalent, followed by *E. histolytica* and *E. nana.* Among flagellates *Lamblia intestinalis*, *Chilomastix mesnili*, *Trichomonas hominis*, and *Tricercomonas* are recorded, and of especial interest are nine cases of *Isospora hominis.* Two very heavy infections of this coccidium were observed, and attempts were made to infect puppies but without success. — The Genus *Lernæopoda*, including a Description of *L. mustelicola* n.sp., Remarks on *L. galei*, and Further Observations on *L. scyllicola*, by W. Harold Leigh-Sharpe, is an account of the four commonest species of *Lernæopoda* occurring parasitic on the fishes of British waters.—A Practical Hot-air Disinfector, by Harold Orr, contains a description, together with diagrams, of a very simple form of hot-air chamber which has been used on a large scale for disinfecting the clothing of troops. As the louse and the nit are both destroyed by ten minutes' exposure to a dry heat of 55° C., it is obvious that this method of killing them is preferable to the use of sulphur dioxide or steam. For practical purposes the material for disinfestation was exposed to a temperature of 75° C. for 20 minutes, and the chamber described affords a ready means of obtaining these conditions in the field.—Hermaphroditism and other Abnormalities in *Pediculus humanus*, by D. Keilin and G. H. F. Nuttall, contains an extremely interesting account of the results of crossing the human body-louse with the head-louse. Under certain conditions these crosses result in the production of a large number of hermaphrodites in the offspring, and the present article comprises a description, together with numerous illustrations, of a very large number of these forms. Results of experiments are also given in support of the specific identity of "*P. capitis*" and "*P. corporis*." Apart from the fact that they are mutually fertile, when *capitis* are bred in pill-boxes on the body they gradually acquire all the morphological characters of *corporis*. *Capitis* and *corporis*, therefore, constitute merely two races of one species, *Pediculus humanus*.—The Systematic Position, Synonymy, and Iconography of *Pediculus humanus* and *Phthirius pubis*, by G. H. F. Nuttall, also includes a useful chapter on the systematic position of the *Anoplura* and definitions of its suborders.—Further Observations on the Habits and Parasites of Common Flies, by G. S. Graham-Smith, contains many useful additions to our knowledge of flies and their parasites. The first part of the paper is devoted to an account of the influence of weather on flies, from which it appears that the curve recording the number of flies caught corresponds with the curve for the maximum temperature recorded in the sun. The appearance of flies early in the season does not necessarily indicate a great abundance in the latter part of the season. The cleansing habits of flies are illustrated by a series of excellent photographs of *Sarcophaga carnaria*. Empusa disease is found to infect species other than house-flies, in captivity *S. carnaria* being especially susceptible. In addition, specimens of *C. erythrocephala*, *L. cæsar*, *H. dentipes*, *F. canicularis*, *A. radicum*, *M. corvina*, and *S. stercoraria* have been found suffering from the disease. Certain Gamasid mites destroy both fly eggs and young larvæ, whilst various beetles destroy large numbers of puparia, but the most important enemies are the *Hymenoptera parasitica*. Examples of the five most important families—namely, the Cynipidæ, Proctotrypidæ, Ichneumonidæ, Chalcididæ, and Braconidæ—are described and figured. Further, very interesting experiments and observations are included on the life-cycle of *Melittobia acasta* and of *Alysia manducator*.—On the Life-History of *Ascaris lumbricoides*, L., by F. H. Stewart, constitutes the fourth part of the author's observations on this parasite. The present article is an account of three experiments with *Ascaris suilla* and a description of the larvæ that were obtained by feeding the "ripe" eggs to sucking-pigs.—The Incubation Period of the Eggs of *Hæmatopinus asini*, by A. Bacot and L. Linzell, comprises an account of experiments on the length of time taken to hatch the eggs of the common horse-louse. The results show that eggs may hatch up to 34 days after being laid, but the majority hatch after about 18 days.—Observations on the Biology of the Ixodidæ, by G. H. F. Nuttall, deals with the behaviour of the sexes in *Amblyomma hebræum*, *Hyalomma ægyptium*, and *Rhipicephalus bursa* when upon the host. The behaviour differs in these three ticks, for in the case of the first-named species the females seek the males, whilst in the other two the males seek the females.—On Two New Species of the Cestode Genus *Oochoristica* from Lizards, by H. A. Baylis, contains a description of two new species of tapeworms, and a comparison of the two genera *Oochoristica* and *Linstowia*.—Tsetse Flies and Trypanosomiasis, by H. Lyndurst Duke, is a most important article on "some questions suggested by the later history of the sleeping sickness epidemic in Uganda Protectorate." The writer, who has had many years' experience of sleeping sickness in Uganda, supports the hypothesis that there are two types of human trypanosomiasis in that region—one chronic, still widespread throughout the wild game, the other invariably fatal. The latter strain is supposed to be transmitted only by mechanical means, such as when the same fly bites two or more persons with very short intervals between. In the present place it is not possible to do full justice to the author's views, but the main issue of the article is to call attention to the question raised by the outcome of the preventive measure with a view to determining future policy. The obvious interpretation seems to be that reconstructive efforts might be begun in Uganda, on the assumption that an epidemic of sleeping sickness is impossible unless there is a sufficiently broad contact between fly and population to render possible the development of a virulent *mechanically transmitted* strain.—On the Life-History and Larval Anatomy of *Melinda cognata*, Meigen (*Diptera calliphorinæ*), Parasitic in the Snail *Helicella* (*Heliomanes*) *virgata*, Da Costa, with an Account of the other Diptera Living upon Molluscs, by D. Keilin, consists of two parts. In the first is given a complete account of the life-history and early stages of a common species of fly which the author found at Cambridge living as parasites on a common snail, whilst the second part is a review of all observations made hitherto on the life-history of different flies feeding upon living or dead molluscs. With regard to *Melinda cognata*, the female lays two or three eggs in the mantle cavity of each snail. The larva that emerges from the egg bores into the kidney and gradually destroys the renal epithelium, while later it devours the kidney and liver, thus killing the snail, and the final stage of development is completed in the decomposing liquid mass formed in the shell by the putrefying remains of its host. Finally, the larva pupates in the earth, the adult emerging about a fortnight later. A large number of species of flies have been recorded from molluscs, but in practically every case the observations are so incomplete as to be of little value. In an appendix the author mentions an interesting observation by M. E. Séguy, showing that the larvæ of *Musca domestica* will attack snails and complete their development as parasites. From 50 snails collected in the middle of January at Rambouillet nine yielded larvæ of the house-fly.—The Anatomy of the Head and Mouth Parts of *Psylla mali*, the Apple Sucker, with Some Remarks on the Function of the Labium, by A. J. Grove, in addition to providing anatomical details of an important agricultural parasite, contains some observations on the method by which the operations of piercing and sucking are performed in the Hemiptera.

The Journal of Pathology and Bacteriology was founded by Sir G. Sims Woodhead in 1893 and for 27 years has been the only British periodical entirely devoted to pathology. The first 11 volumes were published in Edinburgh and had already done much to encourage the study of pathology in this country when the Pathological Society of Great Britain and Ireland was founded in 1906. It was felt by the promoters of the society that an association with some periodical was most desirable, but there were obvious objections to a young society burdening itself with the responsibility of a substantial journal whose financial position was not completely secure. Ultimately in 1907 the journal was purchased from Professor Woodhead and Mr. Pentland by a company of 13 proprietors, members of the Pathological Society, who have been responsible for its conduct till the present year, and at the same time the society adopted the journal as its official organ. Under the skilful guidance of Professor Woodhead and Professor James Ritchie 11 more volumes have been issued and the progress of the paper has been so satisfactory that at the last meeting of the Pathological Society the proprietors were able to pay off the original purchase money and hand over the journal to the society with an adequate working balance. The *Journal of Pathology and Bacteriology* thus becomes the property of the Pathological Society of Great Britain and Ireland, and its founder may well be congratulated on the success of his public-spirited efforts, continued now for nearly 30 years, to promote the progress of pathology.

THE LANCET.

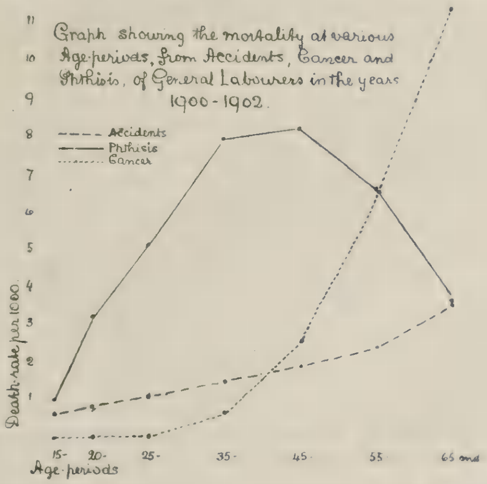
LONDON: SATURDAY, JANUARY 17, 1920.

The Epidemiology of Accidents.

THE efforts which are being made through an organised "safety-first" campaign in this country, and through the activities of the National Safety Council in America, to reduce the prevalence of accidents deserve every support. There can be no doubt as to the value of the work; in the annual report of the Chief Inspector of Factories for 1918 the claim is made that the establishment of accident committees in factories may reduce industrial accidents by 50 per cent.; and in the United States of America, in a two weeks' "drive" in October, 1918, on the railroads of the North-Western region, there was a casualty reduction of 67 per cent., while 42 out of the 63 railroads concerned came through the two weeks without a single serious accident. There is, however, a tendency to concentrate effort on reducing accident risk without pausing to consider whether other influences may not also be concerned in accident causation; yet a careful study of cause should always precede action, for where the cause is not known the effect cannot be deduced. Two elements contribute to the occurrence of nearly every accident: (1) the risk of injury, and (2) the individuality of the person injured. A motor-car travelling along a street represents risk of injury to a foot passenger; but it is the temporary folly of the foot passenger which causes him to step off the kerb in front of the car.

Statistics of industrial accidents throw considerable light on the importance of this second element in accident causation; and their investigation suggests that accident prevention, an important branch of the science of preventive surgery, is closely akin to preventive medicine. The idea that an accident is, as the word suggests, a chance occurrence, is found to be no more true than for an attack of typhoid, influenza, or tuberculosis. Each industry has its own accident-rate associated with the risk of that form of employment; but this rate is not a chance one; it is as regular from year to year as the occurrence of tuberculosis or cancer, and steadily rises with advancing age; it is, in fact, a statistical entity obeying epidemiological laws. The diagram, which we reproduce below, is a typical one for industrial groups. Not only is the total number of accidents thus regular, but the numbers due to special types of risk (e.g., machinery in motion, falling bodies, persons falling) and affecting special parts of the body (e.g., loss of whole or part of arm or leg) are similarly regular year by year. Accidents appear to be dependent on the personality of the persons injured and to represent reaction to environment. Influences which affect health also affect the incidence of accidents; thus, hours of work, illumination, temperature, and ventilation affect activity and fatigue; they have also been shown by VERNON[1] to influence the prevalence of accidents. Nor does the likeness between the occurrence of accidents and illness stop here; for, according to GREENWOOD,[2] some persons have a tendency to sustain accidents, just as in the field of medicine some persons have a predisposition to succumb to tuberculosis or other infectious disease. Apart from any innate predisposition, there are times when any person is more liable to accidents than at others; just as most people are aware of attacks of losing things, and when one thing is lost expect to lose two more before the attack is over.

Temporary or permanent individual reaction to environment appears to be as important an influence in the causation of accidents as in the occurrence of disease; and the safety-first campaign must direct its attention to this question if it is to meet with the success it desires. BELLHOUSE, after stating[3] that in factories in 1918 twice as many non-machinery accidents—i.e., accidents due directly and obviously to human mistakes—occurred as machinery accidents, considers that not less than 65 per cent. of the latter may be attributed largely to such causes as negligence, carelessness, want of thought, and, perhaps more than all, to lack of proper appreciation of danger. The maintenance of safety, like the maintenance of health, consists of a rope with health at the one end and risk at the other. A person in sound health will resist either the risk of normal microbic invasion, or, aided by quick special sense reaction, risk of accident occurrence. Lower the health resistance and the pull of risk will win the tug of war. Similarly, of course, increasing the risk, as by mass infection or increased



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[1] An Investigation of the Factors Concerned in the Causation of Industrial Accidents. H. M. Vernon, Health of Munition Workers' Committee. Memo. 21. 1918. (Cd. 9046.)

[2] The Incidence of Industrial Accidents upon Individuals, with Special Reference to Multiple Accidents. M. Greenwood and H. M. Woods. Report No. 4. Industrial Fatigue Research Board. 1919.

[3] Annual Report of Chief Inspector of Factories for 1918.

potency on the one hand, or by an earthquake or explosion on the other, will produce the same effect; but increase of risk is abnormal compared with lowered health resistance. Just as education in personal health is to-day the best means for improving national health, so, in a "safety-first" campaign, the aid of the individual and his education as to the existence of risk, with the way to avoid it, are the matters of primary importance to be considered. In matters neither of sickness nor of accidents can all element of risk be removed; but by improving health and alertness, rather than by fencing the public with protective guards, the influence of risk can be resisted.

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Lessons from the Flexner Bacillus.

It is now universally agreed that the microbes which cause bacillary dysentery are *B. dysenteriæ* Shiga and *B. dysenteriæ* Flexner. These organisms form a natural genus having the following characteristics: "They are short rods, destitute of flagella and non-motile, forming no spores, not liquefying gelatin, negative to Gram's stain, and fermenting glucose and sometimes other sugars and alcohols without formation of gas."[1] The bacteriological diagnosis of the organisms depends chiefly upon their biochemical and serological reactions. Shiga's bacillus reacts with a smooth regularity to well-defined tests and its identification therefore presents no great difficulty. It is distinguished from Flexner's bacillus by its inability to ferment mannite, by its constant failure to produce indol in peptone water, and by sharp differences in its agglutinating properties. It also differs from the Flexner organisms in its high toxicity to man and animals. For these reasons most workers now regard Shiga's bacillus as a distinct and separate species, of which we have, so far, only one serological type. The Flexner bacillus presents greater difficulties. By means of its variable sugar reactions and its agglutinogenic powers it can be separated into several distinct strains.

The classification of the Flexner bacilli, which has up to now formed the usual working basis for bacteriological laboratories, and which is found in current text-books, is that put forward by Hiss in 1904. This observer proposed to separate the organisms proved to have a causal relationship to bacillary dysentery, and differing from Shiga's bacillus in fermenting mannite, into three groups—the Flexner, the Y, and the Strong. The first differs from the second in fermenting maltose; the organism found by Major R. P. Strong, U.S.M.C., ferments saccharose as well as maltose. Each group is further distinguishable by agglutination reactions. This classification is now known to be imperfect. In the first place the sugar reactions of these bacilli are very variable, and are therefore unreliable as a basis of classification; in the second the antigenic structure, and consequently the agglutinations, of the organisms are much more complex than is indicated in Hiss's terminology. Kruse, who has contributed so largely to our knowledge of this subject, published in 1907 a more complete classification of the mannite-fermenting dysentery bacilli, in which he divided the group into half a dozen serologically distinct races. These were labelled A, B, C, &c. His work was confirmed by other bacteriologists in Germany, but, unfortunately, when the European war broke out, there was no collection of Kruse's strains in this country. The diagnostic work in dysentery in the war suffered as a consequence owing to the small range of agglutinable emulsions and agglutinating sera provided. Professor F. W. Andrewes and Dr. A. C. Inman have now published a study of the dysentery bacillus in which they show how five strains have been delimited by serological methods. They have put the absorption of agglutinin technique on a quantitative basis and have used it to indicate the antigenic composition of the different races, which is represented by ingenious coloured diagrams. The provision of agglutinating serums corresponding to these organisms will make bacteriological diagnosis of dysentery much more satisfactory.

A note on the general utility, apart from diagnostic purposes, of the separation of an organism into strains by means of agglutinins may not be inappropriate. From the point of view of infection and immunity the work of Dr. W. J. Tulloch on *B. tetani* and of Miss M. Robertson on *Vibrion septique* has a direct bearing on the subject. These workers have shown that the anaerobic bacilli mentioned may each be separated into several serologically independent strains. Each organism excretes a soluble toxin to which a corresponding antiserum can be prepared. Now, a monovalent serum—that is, a serum prepared by immunising an animal against the toxin of a single race of one of these bacilli—is able to neutralise the toxin of each and every race. There is thus no advantage in using either a monovalent or polyvalent serum. It follows that, although the bacillary protoplasm of *Vibrion septique* may possess variable antigenic properties, the toxins produced by all the strains are identical. In tetanus and gas gangrene the pathological changes are produced by toxins. The agglutinogenic powers of the organisms do not, therefore, appear to be of great practical importance.

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Infectious Disease and the Public View.

The daily press appears to have become hypersensitive towards the incursions of infectious disease. So far as this represents a balanced endeavour to stimulate measures for the control of preventable infectious disease, and to educate the community in the need for such prevention, the public and the medical profession have reason to be sincerely thankful. But more than occasionally the doctor feels that the criticisms of his endeavours, which the lay reader is offered, are the outcome of an imperfect acquaintance with things as they happen. During the past ew weeks there has been a rise in the prevalence of scarlet fever and of diphtheria throughout the country, a rise which has been brought nto particular prominence in London, where the situation has been aggravated by the ailure of the War Office to restore to the Metropolitan Asylums Board certain fever hospitals ent for war purposes. For this the Ministry of Health has been taken to task, and a statement has been demanded from it as to its activities in searching out the origin of the epidemic, and as to whether it has traced the infection to any carriers or to a milk-supply. Certainly there is a substratum of value underlying this stricture, in that t is the duty of public health authorities, and in a more general sense of the Ministry of Health, to search for the origins of outbreaks of infectious disease. But the particular comment is ill-directed. In view of the multitude of carriers of diphtheria and scarlet fever constantly in London streets, and the universality of the rise in the prevalence of these diseases in the various districts, t is futile to talk of tracing the origin of this wave of disease back to particular carriers. A few moments spent in comparing the type of incidence of a milk-borne epidemic with that of the present outbreak of scarlet fever in London, would show at once not merely the unlikelihood of milk being its source, but also, it is to be hoped, the unwisdom of causing unnecessary perturbation to many a parent.

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[1] A Study of the Serological Races of the Flexner Group of Dysentery Bacilli. By Professor F. W. Andrewes, F.R.S., and Dr. A. C. Inman. Medical Research Committee Special Report Series No. 42.

We set this out merely as an illustration of the attitude towards these subjects in some quarters. What is the reason for the attitude revealed? The fact, we imagine, is that while engaged very properly in educating the general public to take an ntelligent interest in its communal health, the average editor is himself undergoing education as a layman in the science of preventive medicine. That education seems at present in some instances to be passing, as regards preventive medicine, through the "bottle-of-medicine" stage which typified much of the therapy of the past: if the community s being plagued by infectious disease, then give t for each such outbreak an appropriate bottle of medicine, labelled "carrier traced" or "milk-supply nfected," or what not. This is not the progressive spirit which the public has a right to expect in the advice which it receives. It is necessary to appreciate the fact that there is much in the ncidence of infectious disease still unexplored, and incapable at present of control. The statement published by the Ministry of Health on Dec. 19th ast with reference to the London outbreak of scarlet fever is the kind of counsel that is really useful. In that statement it is pointed out that the present prevalence of scarlet fever s probably connected with the cyclic recurrence of the disease, and that: "The periodic or quasi-periodic appearance of epidemics is probably due to the occurrence of a cycle in the life-history of the unknown causative organism, and the increase of the non-immune population—causes which are beyond the sphere of administrative control." It does not follow that they will always continue to be beyond administrative control. Every effort should be made steadily to shed light on obscure points in the natural history of infectious diseases, and the encouragement of steady search for knowledge is welcome from whatever source, and immeasurably welcome when it comes from influential quarters. But an irrational demand for the immediate cessation of a particular outbreak, coupled with the implicit demand for somebody's head on a charger if the feat is not accomplished, serves no one.

The medical correspondents of lay papers have a grave responsibility in advising their chiefs as to the facts of infectious disease, as to the possibilities of prevention and of control, and as to the exercise of a proper sense of perspective. And their advice should be free from any political bias, as free as the epidemic wave which rolls towards all electors alike, regardless of the political creed of any CANUTE.

The Privacy of Venereal Clinics.

A DIVORCE suit, heard this week before Mr. Justice MCCARDIE, which ended in a decree nisi against the defending husband, has brought to public notice in a particular manner the position of the medical witness. Against the defendant, who made no defence, adultery was proved, the act of cruelty being the communication of syphilis to his wife. To prove this Dr. S. KADINSKY, under whose care at the venereal clinic of the Westminster Hospital the petitioner had been, was called under subpœna. Dr. KADINSKY demurred at being sworn, and handed to the judge a letter from Mr. W. G. SPENCER, chairman of the Venereal Diseases Committee appointed by the House Committee of the hospital, stating that in adopting the national scheme for dealing with venereal diseases the House Committee proposed to abide by the statutory regulations enjoining absolute secrecy on the medical man in regard to patients attending venereal clinics. Mr. Justice MCCARDIE, however, ruled that higher considerations than those which prevailed in regard to the medical profession made it necessary for Dr. KADINSKY to give evidence, when it was elicited that the petitioner was only known at the hospital clinic by a number, but that the witness could identify her personally. No further questions were asked, and the case terminated as stated.

The case is of great importance to medical men, to the public, and to all actively engaged in the attempt ultimately to stamp out venereal diseases. If the absolute secrecy which has been promised in regard to their cases to all who attend venereal clinics can be violated at all, however high the reason, the public resort to these clinics may diminish. And yet all medical hope of the practical control of venereal diseases depends upon the fearless use by the public of treatment centres. Mr. Justice MCCARDIE'S action in a very difficult situation seems to demand an alteration of the law.

Annotations.

"Ne quid nimis."

INVESTIGATIONS WITH A LARGE QUANTITY OF RADIUM.

AN investigation is proceeding at the Middlesex Hospital, London, upon the effects of large quantities of radium in the treatment of cancer. The quantity of radium involved is nearly five grammes of the bromide, and the total quantity of material is used at each clinical application. This investigation arose at the suggestion of Mr. C. R. C. Lyster, until lately the head of the X ray and electrical department of the hospital. He saw the opportunity of putting to a practical test what has often been discussed by radiologists—namely, the treatment of cancer by a much larger quantity of radium than has hitherto been possible to anyone in this country. This suggestion was favourably received by the Medical Research Committee, which has generously provided all the facilities for this investigation, acting in concert with the Ministry of Munitions. Up to the present time it has been a matter for speculation whether the clinical results of exposing a malignant tumour to the rays from, say, a fifth of a gramme of radium for a certain number of hours would be improved if the intensity of the rays were increased 25 times, the time of exposure being correspondingly reduced; the opportunity is now provided for putting such an important question to the test. The fullest use is being made of the radium as occasion allows in the Cancer Research Laboratories of the Middlesex Hospital. There are many matters of fundamental importance in the field of radio-biology which in their turn have awaited the means for their solution. The difficulty hitherto has been to obtain a sufficiently intense source of gamma radiation, and this is now available. The possible danger to those concerned in handling such a quantity of radium as that in question has been carefully considered. When not in use the radium is kept in a safe, inside which is a lead case weighing over a ton, the radium being placed in a cavity in the middle of the lead. The thickness of lead used ensures that not more than 1 part in 1,000,000 of the gamma rays emitted by the radium penetrates the safe. All manipulations are made without contact of the operator's hands and the radium receptacle. It is hoped that in the near future a report upon the clinical and laboratory findings will be submitted to the Medical Research Committee.

These investigations add interest to the announcement made in the *Economic Review* of Dec. 31st, 1919, an invaluable source of weekly information from the foreign press, on the output of radium in France. The following paragraph occurs in the number referred to:—

Output of Radium.

The *Basler Nachr.* (Dec. 7th) reproduces from the General Report of the State of the French Industries the following details on radium production: "Several new radium extraction factories were established during the war. These factories produced on an average 18 g. of the radium yearly. In 1913 this radium was worth 750,000 francs per gramme; to-day it is worth 900,000 francs. The United States are the most dangerous competitors of France. In five years one factory produced 27 g. of radium at a price of 6,700,000 francs. Since 1913 three new radium factories have started in America.

It is interesting to note how the rare elements are coming into commercial production. Canada, for example, has taken up the separation of helium gas on a considerable scale, induced by the want of a gas lighter than air, but which is non-inflammable, for dirigible balloons. The density of helium is just under 2, while that of the atmosphere is 14·4, hydrogen being taken as unity. Not many years ago helium was a chemical curiosity, and its discovery by Ramsay was of great theoretical importance. It is, moreover, a degradation product of radium. Had the war continued a great industry would have been created in Canada, for it was estimated that 2,000,000 cubic feet of this gas could have been produced per month from the natural gas fields of Southern Alberta for use in our balloons at the front. The gases there evolved proved to contain 0·36 per cent. of helium. Not very many years ago we only knew it in traces in a vacuum tube, showing a brilliant yellow light corresponding with a line in the sun's spectrum, and until then it had not been recognised as existent on the earth at all. Radium is a still rarer element, but, as the above record shows, its output is increasing for therapeutical amongst other purposes.

THE SURGERY OF THE PITUITARY: VICTOR HORSLEY'S WORK.

AN excellent treatise, *La patologia chirurgica dell' ipofisi*, by Dr. Giovanni Verga, published in Pavia some ten years ago, draws marked attention to work of Victor Horsley, some of which, the author informs us, has escaped publication. Dr. Verga's book is largely compiled from many sources and deals with the anatomy, physiology, and functions of the pituitary body and the symptoms connected with alterations in its structure or secretion, specially in reference to acromegaly, genito-adipose dystrophy, and cachexia. These three conditions are fully discussed in their relation to the pituitary body. Under the head of pathological anatomy the author brings forward a fund of information gleaned from various observers on congenital malformations, traumatic lesions, inflammatory processes, acute and chronic, in connexion with tuberculosis and syphilis, atrophy, and various degenerations and tumours. Tumours of the organ give rise to secondary changes in the sella turcica and in the organs at the base of the brain, and a photographic reproduction is given from a specimen in the Hunterian Museum by Professor A. Keith, showing the invasion by a pituitary adenoma of the surrounding parts. In the preface the author acknowledges a debt of gratitude to Horsley for permission to publish 12 cases, drawn from his practice in the National Hospital for Paralysis and Epilepsy (Queen-square) and from his private practice. Some of these cases may hitherto have escaped publication, and they are to be found in detail in Dr. Verga's book. They afford valuable information as regards the symptomatology of pituitary tumours, which the author has largely drawn upon in a chapter which occupies a considerable portion of the book. In the cases operated on by Horsley a diagnosis was made from the symptoms and subsequently confirmed. The operation was performed in two stages at an interval of 4–5 days, the first consisting of a free craniectomy in the temporo-parietal region, the second of incision of the dura, raising the temporo-sphenoidal lobe, and extirpation of the tumour. In one case only was the craniectomy frontal and e operation conducted along the anterior cranial ssa. In these 12 cases, there were four deaths, wo immediate and two at dates 8 and 18 months fter operation. Dr. Verga compares these results ith those of v. Eiselberg, Hochenegg, and Hirsh, ho operated by the transphenoidal method of chloffer, in whose cases a large recovery of vision ok place, a fact which, if it took place, is not entioned in Horsley's cases. The book, which is pecially praiseworthy in its large outlook, will be seful to all interested in this branch of surgical athology; it contains an extensive bibliography f over 400 names, showing an extensive range of ollation.

THE INCIDENCE OF CANCER MORTALITY.

Louis I. Dublin[1] has analysed the cancer mor-ality experience of the Metropolitan Life Insur-nce Company of New York during the six years 911–16. He concludes that cancer is more frequent n the industrial class than in those of higher conomic status. This is contrary to the generally eld opinion that luxurious living conduces to ancer, but is in harmony with the close association f cancer with chronic irritation of various kinds. is figures show no evidence of an increase in cancer eath-rates over the six-year period studied. It is orth noting, however, that the cancer mortality in he United States is 30 per cent. less than that in ngland and Wales (70 per 100,000 as compared ith 100–110 per 100,000), and it is hard to believe hat such a wide difference can be entirely real as etween two populations of common origin living nder very similar conditions. The original must e consulted for the details of organ, sex, age, and olour incidence. The paper is interesting as an ndication of the tendency in modern statistical nvestigations of cancer to aim at more and more omogeneous groups by repeated subdivision of he data, so as to eliminate, or allow for, the many ncontrollable factors which influence the incidence f the disease.

THE CORRELATION OF EGGS AND NESTS.

It is not always that *Biometrika* contains papers hich are both interesting and comprehensible to hose untrained in statistical mathematics, but the "coöperative study" in the issue of November last, n the Nest and Eggs of the Common Tern, is an xception. In a previous paper the authors had ade a preliminary study, on material collected in 913, chiefly with a view to determining the extent f the similarity in measurement and in colour etween eggs of the same clutch. This is repeated or observations made in 1914, and the curious esult is reached that both in measurements and n colour and mottling there was conspicuously reater resemblance between the eggs of one clutch n 1914 than in 1913. More interesting, perhaps, o the field naturalist is the attempt to discover hether there is any correlation between the type f egg and the form of nest. The eggs are either reen or brown in ground-colour, and vary con-iderably in extent of mottling, and the nests may e classified into: (*a*) "simple"—i.e., with no aterial collected, and either no hole or merely a epression; and (*b*) "complex," consisting of a ole with nest material accumulated around it. he conclusion arrived at is that although either brown nor green egg layers are the more elaborate nest-builders, the denser brown and lighter green eggs are somewhat more usually associated with simple nests, and lighter brown or darker green with those of more elaborate construction. Larger blotches tend to be found in simple, finer mottling in elaborate nests, and the eggs in mere holes are rounder than those in complex nests. The most interesting problem considered—unfortunately not completely solved—is that of eggs of different colour in the same nest. In about 8 per cent. of the clutches brown and green eggs were found together, and three hypotheses are considered. 1. That the terns consist of two "gentes," one of which lays brown, the other green eggs, and that the mixture arises from the existence of "cuckoo-terns," which lay in other hens' nests. The rarity of four-egg clutches, which must be expected to occur if a cuckoo-tern lays in a nest already containing three eggs, makes this suggestion unlikely. 2. Since the proportion of green eggs increases with the size of the clutch, it seemed possible that a hen lays brown eggs more frequently at first, and green eggs later, but the statistics do not support this hypothesis. 3. The remaining suggestion, regarded as perhaps most probable, is that there are two "gentes," one of which lays chiefly brown and the other chiefly green eggs, but that each may occasionally lay an egg of the other colour. The paper is illustrated with an admirable series of photographs of the terns on their nests.

LATENT MALARIA.

THE clinical symptoms of latent malaria, such as splenomegaly, mononucleosis, basophilia of the red cells, pigmentation of the leucocytes, &c., are often wanting, and it is necessary to use provocative measures to ensure the passage of the parasite into the blood stream or produce a typical febrile attack, with the object of instituting vigorous treatment and eliminating carriers. With this intent many measures have been devised by various observers, and two papers in a recent issue of *Il Policlinico* (Practical Section, Nov. 30th, 1919) are of interest as bearing on this important subject, which has come into prominence owing to the large number of demobilised and discharged soldiers now in this country who have suffered from malaria while on active service. Dr. A. Dazzi experimented on 20 patients with injections of adrenalin, in 12 of whom repeated examination of the blood failed to discover parasites, while in the other 8 only occasional forms in various phases of development were found. His investigations show that the administration of a milligramme of adrenalin was harmless to the patients and did not cause a typical febrile attack, but was always followed by the evidence of the plasmodium in the blood stream. The presence of the parasite was transitory, and began about 20 minutes after the injection, reaching its acme in about one hour. After 24 hours the parasite was no longer demonstrable. In cases in which the parasite was already present in scanty numbers the action of adrenalin caused a striking increase, while it also occasioned a marked diminution in the size of the spleen, except in cases of advanced sclerosis of the organ. This shrinking began a few minutes after the injection and lasted several hours, the action of the drug being apparently to induce contraction of the muscular tissue of all the splenic vessels, causing a kind of squeezing of the whole organ, by means of which the parasites lodged in its substance were expelled into the general circulation. The second paper is by Professor T. Silvestri, who experimented with splenic irradiation with a quartz lamp, the injection of adrenalin, paraganglin, horse serum, &c. In his hands the injection of a milligramme of adrenalin caused a specific febrile attack, rarely on the same day, most often on the following day, and sometimes only after 2–4 days, accompanied by the presence of the parasite in the blood; sometimes a second injection was necessary. He prefers, however, the use of strychnine by mouth in doses of 1–3 mg. daily as being a method which combines certainty with simplicity. As a rule the attack was not delayed beyond the third or fourth day. The mobilisation of the plasmodium, whatever the means used with this object, is to be advocated not only for diagnosis, but also for individual and general prophylaxis and for treatment. Professor Silvestri is of opinion that the practice of mobilising the parasite should form an integral part in the actual treatment of malaria, as only by this means is it possible to arrive at complete sterilisation of the organism and the cure of forms which have hitherto been rebellious to the most energetic treatment.

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[1] Journal of Cancer Research, 1919, iv., 235.

HIBERNATION OF HOUSE-FLIES.

THE question in a current pantomine song, Where do flies go in the winter-time? gives public expression to the mystery of the winter fly. The problem of finding where, and in what stage, the house-fly passes the colder months of the year, is one that has been of interest to entomologists for many years, but in spite of numerous investigations, hitherto no satisfactory solution has been obtained. At present, opinion is fairly evenly divided between those who consider that the fly passes the winter in the adult stage, and those who believe that the immature stages are of most importance in the continuance of the species to the following year. Very serious objections can be produced against both views. Although occasional adults can be found in human habitations during the winter months, they are exceedingly rare, and hitherto experimental attempts to keep house-flies alive through the winter have failed. On the other hand, although the common house-fly, *Musca domestica*, can certainly pass the winter in the immature stages, either as larvæ or pupæ, the localities in which they breed again present difficulties. Although they have been recorded once or twice from manure heaps, a recent observer, Mr. J. E. M. Mellor,[1] failed to obtain a single example of *M. domestica* after a very careful examination of numerous manure heaps and other likely places during the winters of 1916 and 1916–17. Thirty-nine other species of flies were obtained, some of which occur in houses, but not *M. domestica* itself. In reference to this problem the observations of M. E. Séguy, of Rambouillet, France, are of the greatest interest. These are briefly recorded by Mr. D. Keilin, Sc.D., in an appendix to his article in *Parasitology* (briefly summarised in another column) on flies living in molluscs, and suggest that one way, at least, in which the house-fly may pass the winter is as a larva feeding on snails. M. Séguy placed living snails into a jar containing some larvæ of *M. domestica*, and in eight days the molluscs were completely devoured. Similar results were obtained by confining snails with a few pairs of the adult flies, the newly-hatched larvæ boring their way into the snails and, after devouring one passing easily into another. Apparently in nature the larvæ can live in the snail during the winter for out of 50 snails collected in the middle of January no less than nine contained immature stages of *M. domestica*. Should this important observation be confirmed, a very unexpected light will be thrown upon the mystery of the hibernation of the house-fly, and something may then be done to remedy the fate of the "fly-villas," as they have been called, situated within reach of refuse dumps.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

FROM time to time there have appeared in these columns accounts of the monthly meetings of the Medical Sickness, Annuity, and Life Assurance Friendly Society, and we hope that those who have read them and were not members of the Society may have wondered at their neglect to take advantage of an organisation with such practical aims and large possibilities. Since 1884 the Society has been endeavouring to demonstrate to practitioners that they could save some 25 per cent. on insurance premiums for sickness by insuring in this Society, their aim here being partly on the lines of the Medical Insurance Committee, which is now becoming a regular source of income to the best medical charities. Partial success has been obtained in that 3500 members of the medical profession are insured in it, but the profession numbers more than ten times the total. Founded by, for, and run by medical men, a society of this nature should have appealed to a greater proportion of the constituency. Besides the usual life assurances in the form of endowment, annuities, &c., the special feature of the Society, framed to meet the peculiar requirements of medical men, is the sickness insurance. This is in the nature of a permanent contract to the age of 65, renewable and terminable at the option of the insured and not of the company, a most important point; for the insurance of a sum per week, payable in full for the first 26 weeks of incapacity and half the full amount thereafter so long as the incapacity continues, up to the age of 65 provides not only cover for a temporary illness, but also against practically permanent breakdown. Many cases have arisen where men have had to draw this insurance till the limiting age, which proves that such a scheme is required. It seems to us that if more members of the profession availed themselves of the opportunity provided and insured in the Society, we should not have so many sad appeals for assistance from men broken in health. For what, after all, is the fate of the average medical practitioner after, say, a year's illness? Too often his practice has gone, and then comes that steady struggle against odds until the inevitable loss of livelihood. Full particulars of the Society can be obtained from Mr. Bertram Sutton, secretary, Medical Sickness, Annuity, and Life Assurance Friendly Society, at 300, High Holborn, London, W.C. 1.

THE "SCHWEIZERISCHE MEDIZINISCHE WOCHENSCHRIFT."

WITH the first issue of the New Year the *Correspondenz-Blatt für Schweizer Ärzte* increased its format to the familiar size of the *Deutsche* and *Münchener*, and became in external appearance the important medical organ which its contents have ng justified. Established 50 years ago, it has en the medium through which most of the portant discoveries and observations of Swiss ysicians and surgeons, whether French- or erman-speaking, and the proceedings of Swiss edical societies have reached the outside world. ie journal gains by the change in both its main ctions. The length of the line in original com-unications has been reduced from 5 in. in a ngle column to 4 in. in two columns—a boon the reader. In the abstracts and reviews e line has been increased with equal advantage. o one will grudge the editors of the journal, d especially the learned Professor Ernst edinger, the increased recognition which the ange must bring about. Switzerland, by ason of its central position and natural attrac-ons, possesses advantages for post-graduate study which every civilised nation has been quick to 'ail itself, and at the end of last century Kocher, hli, and Langhans at Berne represented the ghest level of surgery, medicine, and pathology. wholesome cosmopolitan spirit pervades medical hools so closely in touch with neighbours of fferent nationality but similar tongue, and this irit is also evident in the Swiss medical weekly. e commend its perusal to those who command e French and German languages, but have sufficient time to study the medical literature of e continent in extenso.

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[1] Annals of Applied Biology, September, 1919.

THE RAT HUNT.

THE brief career of the Vermin Repression Society s been a glorious one, for, unlike its two pre-cessors, it has secured the passage through rliament of a Rats and Mice Act, which if pro-rly administered will go far to rid the country of a ngerous and destructive pest. Lord Aberconway, airman of the Society, who presided at the nner, held at the Connaught Rooms, London, Friday, Jan. 9th, to celebrate the passing of the t, queried whether, the work of the Society ving culminated in legislation, it might now be sbanded. But the Government representative the dinner, Sir Arthur Griffith-Boscawen, id that he regarded the Society as only the beginning of its work. The new Act npowered any local sanitary authority to carry it the destruction of rats on the premises of a egligent private owner, charging him with the cpense incurred. The Act also empowered the inistry of Agriculture to do the same in regard to egligent local authorities. The Vermin Repression ociety should, he thought, undertake the task of eeping the new Ministry up to the mark. It is ot necessary any longer to dwell upon the onomic loss occasioned by rats. In the nited States they annually consume 35 to) million dollars' worth of grain; in Great ritain the whole cost of old-age pensions ight be saved. Fortunately, useful knowledge is cumulating for an effective campaign. To the nployment of viruses attaches the double objec-on of the probable adaptation of the vermin to the oison and the possible development of virulence r man. They are being discontinued in favour of iemical agents, which have a selective toxicity r the rat alone, and do not, like strychnine, rsenic, and phosphorus, leave a trail of unintended ictims. At present barium carbonate and extract f squills hold the field. Two grains of the former iffice to kill a medium-sized rat, although innocuous to domestic animals, cats and chickens, and the specific toxicity of squills appears to be still greater. We badly need for common use an up-to-date comparative table of poisons, with their toxic and lethal doses per kilo of body-weight for different members of the animal kingdom. Apart from efficient tools, organisation is, of course, the chief requisite in a successful anti-rat campaign. In one of the home areas the county organising officer has recently conferred with representatives of most of the local sanitary authorities in the county, and a pamphlet has been issued detailing an effective campaign and the precise measures of carrying it out. We may hope that the campaign will attain the same notoriety as that organised in Denmark by Emil Zuschlag in 1907, when this indefatigable enemy of the rat was freely caricatured as a Robespierre.[1] If this happens, the brown rat may soon be hunted down as successfully by man as the brown rat has already eliminated its predecessor, the black rat. Whatever else is done, at least all storeplaces of food should be rat-proofed.

THE King of Italy has conferred the Cross of the Order of the Crown of Italy on Sir Donald MacAlister, K.C.B., President of the General Medical Council, for services in the war, and the special permission to wear the decoration in this country has been granted him by Royal Warrant.

Sir John Bland-Sutton has been elected first President of the Association of Surgeons of Great Britain and Ireland, which held its inaugural meeting on Jan. 8th, Sir Rickman Godlee presiding. The Association is the outcome of a feeling expressed by Sir Berkeley Moynihan, six years ago, that no adequate occasion at present exists for a fully representative debate on surgical topics.

THE number of medical students registered during the past year is 3393. The figures for the previous years, as supplied by the Registrar of the General Medical Council, are as follows:—

1912	*1913*	*1914*	*1915*	*1916*	*1917*	*1918*
1397	1480	1600	1918	1875	2150	2253

The number of dental students registered during the past year is 612, and the figures for the previous years are as follows:—

1912	*1913*	*1914*	*1915*	*1916*	*1917*	*1918*
336	361	294	217	158	143	161

A SPECIAL general meeting of the Royal Society will be held on Jan. 22nd, at 3.30 o'clock, the Prince of Wales having expressed his intention to attend for admission into the Society on that day.

THE announcement to the effect that Professor Starling has been appointed Director of Medicine at St. Thomas's Hospital (University of London), in connexion with the formation of University units, is incorrect.

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[1] See The Rat Problem, by W. R. Boelter, London, 1909.

INDEX TO "THE LANCET," VOL. II., 1919.

THE Index and Title-page to Vol. II., 1919, which was completed with the issue of Dec. 27th, is given in this number of THE LANCET, and will not be issued separately.

MEDICAL PRACTICE IN BOLSHEVIST HUNGARY.

(FROM OUR OWN CORRESPONDENT.)

ALONE among the "intellectual" occupations, medical practice was regarded as "productive" occupation by the Bolshevists, and the physician was allowed to carry on either as a private practitioner or as public employee. While lawyers, professors, and judges in towns were not allowed to keep more than three rooms, including office, the remainder being filled with labourers, medical men were left with living rooms, separate office, and reception rooms.

In the earliest days of Bolshevism the rumour spread that the medical profession would be nationalised, and had the regime lasted longer it would doubtless have happened. The proposal was for every physician to receive from the State a salary of 30,000 crowns (£2500 peace value, at present not worth more than £150) without distinction of rank or position. He was to be at the service of the public with his best knowledge for six hours a day. Up to 32 years of age only practice in public hospitals or in villages was to be allowed. After six years' practice in the country the physician might settle in a town. The one exception in regard to higher salary affected university professors, who were to receive 50,000 crowns a year. The treatment of the public was to be wholly gratuitous; no private practice would have been allowed, and the acceptance of fees or gifts for medical work would have been subject to prosecution.

Almost all the intellectual classes, the so-called "lateiner" occupations, were handled with animosity as "bourgeois" people. As regards bread, they were rationed in the third class, with 250 g. a day. The medical profession, luckily, ranked in the second class, along with iron and metal workers, as "brain labourers," with 350 g. In the first class were soldiers of the Red Army, with 500 g. Medical men were compelled to combine in trade-unions, since only members of such unions were allowed to purchase (at maximum prices) foodstuffs, industrial articles, clothes, or boots. Public baths, libraries, and theatres were only open to trade-unionists. Many who remained outside had to dispense with the most elementary necessities of life. Their children were unable to obtain school-books or clothes, and in the last months of Bolshevik rule were a sorry sight.

In the medical faculty of the University itself professors of world-wide repute were thrown out of position on account of their membership of certain religious societies or for having previously shown anti-socialistic feeling. On the other hand, former members of socialist clubs, without special qualification, have been promoted to the rank of lecturer and even professor. Students applying for admission to socialistic trade-unions have been aided by the State with a monthly support of 500 crowns. The teaching of religion has been prohibited, even in elementary and secondary schools, and the theological faculty of the University has been closed. To the medical faculty an edict went out that the doctrines of Marx and Lassale should be the subject of lectures occupying six hours weekly.

Even after the termination of Bolshevism the medical faculty was not suffered to rest in peace. The authorities of Budapest removed from their positions at the municipal hospitals all doctors who obtained advancement during the Bolshevik era. Dr. Emile Grôsz, professor of ophthalmology, who was president of the Hungarian section at the International Medical Congress held in London during 1913, was an object of rancour by the reactionary elements of his audience, and has been driven out of his institute because he undertook the position of "confidential man" of the medical faculty during Bolshevism. A similar fate has met Dr. Plosz (lecturer on pathological chemistry) and Dr. Illyés (operative urology). The present position of the medical profession is not rosy. Although medical fees have been raised twenty-fold, most medical men are suffering great hardships. Whereas in peace time a physician in Budapest was satisfied with 10 crowns (8*s.*) for a ca to the patient's house, he has now to ask 100 crown (£4 in peace value), and even so he is unable to ear enough to cover the current prices of such things a milk at 10 crowns a litre, bread at 20 crowns a kg. matches at 2 crowns a box, eggs at 5–6 crowns apiece and boots at 800 crowns a pair. High fees involve fewe patients; the general lack of work and shortness o money among the labouring classes has curtailed thei ability to pay medical fees. These facts, in conjunction with the great want of foodstuffs and fuel in the city are causing the mass emigration of medical men from Budapest. Daily 20–30 physicians are leaving the capital with their families to seek easier maintenance and better earnings in the villages and smaller towns.

Nagyvárad.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Medical Committee and the Irish Public Health Council.

A MEETING of the Irish Medical Committee was held in the Royal College of Surgeons on Jan. 6th, Mr. R. J Johnstone in the chair. A letter was read from Dr E. Coey Bigger, chairman of the Irish Public Health Council, stating that at a recent meeting the Council had had under consideration the question of the reform of the medical service in Ireland, and had decided to recommend to the Irish Government the establishment of an Irish Medical Service appointed by competitive examination, with fixed scales of salaries, rights to pension, study leave, &c. Consequent on this decision, the Council had also considered the functions and duties to be entrusted to the medical officers of the service, but before coming to a decision the Council wished to have the assistance of representatives of the medical profession. In particular, advice was sought as to the classes of the community which would be entitled to medical attendance in connexion with the service. He therefore requested the Irish Medical Committee to nominate a few representatives to attend the next meeting of the Council.

The Irish Medical Committee selected the following representatives: Mr. R. J. Johnstone, chairman; Dr. Joseph Power, vice-chairman; and Dr. J. S. Darling (Lurgan), Dr. J. M. Day (Dublin), President of the Irish Medical Association, Dr. W. R. Morris (Waterford), Dr. O'Connor (Queenstown), Dr. W. J. O'Sullivan (Killarney). Dr. E. Thompson (Omagh), Dr. H. T. A. Warnock (Donegal), and Dr. W. W. Murphy (Coolgreany). The deputation was instructed to suggest that the class to be attended by the medical service should be restricted by an income-limit of £3 a week, and that a minimal salary of £650 a year for medical officers should be suggested. The deputation was also appointed as a standing committee to watch the proceedings of the Irish Public Health Council, and give it any further assistance it might require. The interview of the deputation with the Irish Public Health Council took place on the following day. Dealing with other matters, the Irish Medical Committee passed the following resolutions:—

> (1) "That the scheme in existence for medical attendance on discharged disabled soldiers and sailors has proved unsatisfactory both as to the inadequacy of the remuneration and to its method of distribution."
>
> (2) "That the remuneration for certification under the Insurance Act is insufficient, and should be increased by the sum which is returned unexpended each year to the Treasury out of the Equivalent Grant. That as Ireland has to pay one year with another her full quota towards the administrative expenditure of the Act in England, Scotland, and Wales, we consider it grossly unfair that the Irish medical profession should be deprived of their money."

A letter was read from Dr. O'Sullivan stating that the medical practitioners in the Limerick area had refused the capitation fee for medical treatment of Post Office employees, and were now working a scheme under which they received 10*s.* a visit, exclusive of medicines. This arrangement was considered by the Irish Medical Committee to be quite satisfactory.

The Humane Slaughtering of Animals.

suggestive discussion took place in Belfast, at a
eting held on Jan. 9th under the ægis of the Ulster
iety for the Prevention of Cruelty to Animals, whose
mbers protest against the methods of slaughtering
mals at present in vogue at the Belfast city abattoir,
l urge the substitution of the pistol (as a more humane
thod) for the pole-axe. Those on one side urged
t the system in use was needlessly cruel and
uman, and that it arose from ignorance and
judice. On the other hand, those members of
corporation in charge of the Markets Committee
the City Corporation, who had visited other places,
ged that the humane killer they found was
much in use. The butchers, who said they were
pared to adopt the most humane method which
ld be devised, objected to the pistol (so-called
nane plan); meat-traders declared that the meat of
animal thus killed did not keep because the animal
not bleed sufficiently, and that, owing to the tissues
ng full of blood, decomposition set in immediately,
ecially in summer weather. Further, it was alleged
t the blood of the animal killed by the humane
thod was much darker in colour than that of the
mal killed by the pole-axe, and consequently
flesh was darker; and the speakers on the
chers' side asked for an explanation of this alleged
t. The upshot of a discussion—in which there was a
rked difference of opinion—was satisfactory, for the
ster-butchers, who naturally resented any charge of
umanity, gave an assurance that if it could be
ved that the pistol was the better method of killing
mals, and that it could be used with economic
antage, they were prepared to adopt it. It lies now
h the Ulster Society for the Prevention of Cruelty to
imals to accept this challenge and to prove their case
the satisfaction of the meat-traders, and the con-
ners of such animal food.

Accidental Shooting of a Medical Man.

n unfortunate incident happened in co. Clare on the
ht of Jan. 3rd. A police patrol had been attacked
l shots were fired on both sides. The attackers had
l, when Dr. Denis J. Keane, a highly respected
dical man of Ennistymon, returning from a visit to
atient, came along the road in his motor-car. The
ice, thinking he had some connexion with the party
t had attacked them, fired at Dr. Keane, wounding
ı in the forearm. He is progressing satisfactorily.

n. 12th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

New Health Bill.

HE Victorian Government has introduced a new
asure dealing with public health administration.
e main features of interest are that the existing
ırd of Public Health, which is a body of lay
nicipal representatives, is to be abolished and
laced by a commission of seven members nominated
the Governor in Council. In the Bill as it stands
of these are to be medical men, but it is possible
t this will be altered, as the medical profession in
toria is not in favour in Parliamentary circles owing
he continued deadlock between the B.M.A. and the
ndly societies. The most hopeful provision of the
l is the power given to create health areas under
ole-time officers, but it all remains to be done by
clamation. The Labour Party and a section of the
ss clamour for some measure of free medical attend-
e by Government doctors, but it is improbable that
ch in that direction will be enacted under the
sent Bill. At the same time "the health of the
ple" has become a political catchword in Federal
itics, and the Federal quarantine authorities are
ing at taking the whole control of public health
ninistration. It appears almost certain that some
posal for a national medical service of a clinical
ure will be part of such a control, whichever side
pens to come into power. In New South Wales a very considerable degree of State medical attendance already exists, and the Adelaide General Hospital in South Australia has been a Government institution for many years.

The Custody of a Child.

The application of Dr. J. S. Macpherson, C.M.G., to be given the custody of his daughter by a former wife, which has already been mentioned in this column,[1] has been the subject of further litigation. On the order of the High Court the father was entitled to succeed, and his daughter was handed into his care. They left together by the Sydney express en route for Canada. At Albury, where it is necessary to change trains, the girl disappeared and, it is alleged, was driven away in a motor-car belonging to a relative of the Thornley family, who are disputing the father's claim. Dr. Macpherson then brought proceedings to compel the production of the girl. The witnesses who were called all professed entire ignorance of the girl's whereabouts, although it was admitted she was quite safe and happy. Mr. Justice Hood decided there was no evidence to commit anyone for conspiracy, and the counsel for the prosecution then asked for an adjournment sine die. There the matter now stands. It is understood the daughter has expressed her determination to remain with her mother's relatives.

University of Sydney.

At a recent election of ten members of the Senate of the Sydney University four members of the medical profession were elected, including a lady, Dr. Constance Darcy, who is regarded as representing specially the interest of the women graduates.

Federal Medical Relief Fund.

The Federal Medical Relief Fund for medical officers suffering as a result of the war, which was advocated by the various State branches of the B.M.A. and fixed at a prospective sum of £50,000, has reached a total of £9015. This sum does not represent more than a small number of subscribers in each State, and the response has not come up to the expectation of the promoters. The lukewarmness appears due not to any disapproval of the scheme, but to a doubt that there is any occasion to raise such a large amount for the purpose. Under the Government repatriation legislation there appears to be local difference of attitude towards the application of returned medical men for assistance in resuming practice. In Victoria such applications have been refused, but in other States it is said that assistance has been given.

Post-Graduate Course.

A very successful post-graduate course for returned medical officers and others has been carried out by the Victorian branch of the B.M.A. The whole of the Melbourne general and special hospitals were open to visitors, and a special programme was arranged in such directions as were likely to prove of most interest. The courses at the Women's Hospital and at the Children's Hospital were largely attended, while the clinics of other special institutions and the classes at the teaching hospitals were much appreciated. It is probable that this course, which extended over a fortnight, will be made an annual function.

Strange Fatality.

The death of Dr. Norman Gerrard was announced recently under peculiar circumstances. Dr. Gerrard graduated from the Melbourne University in 1905, and at the time of his death was in country practice in Victoria. He developed a sore-throat, which was accompanied within a few hours by such a sense of suffocation that he attempted to perform tracheotomy on himself. At the inquest it was stated that the incision had been correctly made, and that death had resulted from hæmorrhage into the trachea.

Fatal Barium Meal.

A patient in the Sydney Hospital died after taking a barium meal. At the inquest a verdict stated death resulted from the effects of a soluble barium salt, and the coroner said if the hospital regulations had been carried out there would have been no catastrophe. It appeared that the barium compound had not been directly issued from the dispensary for the case, but had been obtained from another ward because the dispensary was closed, and was a sample issued some time previously for a case for which it had not been used.

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[1] THE LANCET, Nov. 8th, 1919, p. 849.

Nov. 18th, 1919.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Recrudescence of Influenza.

INFLUENZA appears to be recurring in Paris. Every day there is a slight increase in the number of cases, which are not, however, very serious, nor is the mortality nearly as formidable as that of last year's epidemic. The most striking feature of the present outbreak is the appearance of the disease in a new form. The pulmonary symptoms are less severe; the temperature runs fairly high, but is irregular, with inexplicable remissions. Vomiting and constipation may be present and, above all, a peculiar torpor, a sort of stupefied condition, with a tendency to sleep, shows the marked effect of the infection on the central nervous system. Deaths have been recorded, but in general the patients recover after two or three weeks. The Administration de l'Assistance Publique has decided to group all such cases together under the care of Dr. Renon at the Hôpital Necker, so that a detailed study can be made of them. Blood cultures have been tried, but no very clear results have been obtained up to the present.

Encephalitis Lethargica.

Another epidemic is at the moment attacking Paris and the Paris district. Professor Netter noted its appearance in the spring of last year and called it encephalitis lethargica. Its characteristic features are bad headache, with paralysis of the oculo-motor nerve, and a continuous inclination to sleep; fever runs high. No special germ has been isolated in culture. Post mortem there is a marked congestion of all parts of the brain. The nature of this malady is not yet well understood. At any rate, it is not sleeping sickness, brought into France by the black African troops. During the course of last year a few cases occurred, but the disease seemed to be stamped out at the end of the summer. M. Netter has just notified eight new cases to the Academy of Medicine. Two are dead, two have recovered, and four cases are still under treatment.

Microbic Defence against Infection.

Dr. Roux, Director of the Pasteur Institute of Paris, has brought to the notice of the Académie des Sciences two sets of observations made by one of his pupils, M. d'Herelle, which seem to open a new chapter in the general pathology of infection. He has shown that in the stools of convalescent dysenteric patients a filterable virus, invisible to the ultra-microscope, can be found. It can be cultivated and has a remarkable bacteriolytic action on Shiga's bacillus. When introduced into dysenteric patients it has a selective action on this bacillus, and ends by destroying it. This action differs markedly from the well-known effect of the lactic acid bacillus, which merely hinders the development of intestinal bacilli by modifying the medium in which they grow. In this case the invisible virus has a direct action on Shiga's bacillus, which is actually dissolved thereby. Patients suffering from dysentery have been treated with much success by cultures of this filter-passer, which appears innocuous to man and which will possibly in the future replace anti-dysenteric serum. The virus shows similar bacteriolytic action towards other bacteria. M. d'Herelle has been able by this method to treat cholera in fowls—a disease nearly always fatal. M. Kabeshima has similarly been able to render rabbits immune to the dysentery bacillus. This bacillus, introduced into the intestine of rabbits who have previously been fed with a culture of M. d'Herelle's invisible filter-passer, rapidly disappeared without producing any sympto of dysentery. M. Roux has pointed out that we ha here a discovery of considerable importance in t future treatment of infective diseases. We can fores henceforward the adoption of a new treatment dysentery, and perhaps of enteric, founded on th method.

Rectal Injections of Bile for Constipation.

MM. Bensaude and Vicente, in order to make use the well-known stimulating action of bile on t intestine, which they have verified by X ray observ tions, have used ox-bile injections for constipation wi complete success. They use a dose of 4 g. to 5 g. of d extract of ox-bile dissolved in a quarter of a litre tepid water. After five to ten minutes a comple evacuation of the bowels takes place, generally witho colic or pain of any sort. These injections act as well acute as in chronic constipation; they have succeed in cases where the classical injections of senna or sodium sulphate have failed. In several cases b injections have been repeatedly used for six mont without either intolerance or diminution of action bei exhibited. Historical investigations have shown th these facts were known from the most ancient time and that the Egyptians themselves were aware of th method of treatment.

Jan. 10th.

THE FELLOWSHIP OF MEDICINE.

AT a meeting of the general executive committee the Fellowship of Medicine and Post-Graduate Medic Association, held on Jan. 5th at No. 1, Wimpole-stre London, W., Sir HUMPHRY ROLLESTON presiding, resolution was passed in silence recording the profou sorrow of the Association at the loss of their Preside Sir William Osler, and expressing the belief that witho his guidance and support the success they have obtain would have been impossible.

The report of the special subcommittee appointed draw up a plan of future work was submitted a approved as follows:—

1. *Post-Graduate General Courses for General Practitioners* A series of courses dealing with the various clinical subje in the medical curriculum, from the general practitione point of view, each lasting a fortnight or more, should arranged by single institutions or by groups of institutio These institutions would be of two kinds: (*a*) those, such the existing post-graduate institutions, providing po graduate instruction through the greater part of the yea and (*b*) those undergraduate schools which are willing provide short courses from time to time.

2. *Post-Graduate Advanced and Special Courses.*—Co secutive series of advanced courses, each series deali with one clinical subject from the specialist or advanc point of view should be arranged by the educational su committee with committees elected annually by separa meetings of London teachers interested in each subje which should include the councils of the correspondi sections of the Royal Society of Medicine.

3. *Post-Graduate Students Preparing for Special Exami tions.*—Courses for special examinations should be arrang for by individual schools as has been done in the past.

Pending the circulation of definite proposals for t future post-graduate programme a request has be circulated to medical schools and hospitals that a steps which are being taken to draw up a program for post-graduate courses should be held in abeyance.

THE INCREASE OF MEDICAL FEES.—**At a large attended meeting of the practitioners resident in the area the Kensington Division of the British Medical Associati the following resolution was passed unanimously:—**

> "That this meeting of medical practitioners resident in Hamm smith, Kensington, and Paddington agrees that, owing to altered value of money, it is necessary that the fees for p fessional work be increased by *at least* 50 per cent. on the f prevailing before the war, and calls upon all practitioners resid in these areas to loyally carry out this recommendation, as is be done in all parts of London and the provinces, it being underst that in cases (known to the practitioner) where such an incre would be the infliction of a hardship he will use his own estim of the fees to be demanded in these circumstances."

Correspondence.

"Audi alteram partem."

'ENEREAL DISEASE AND PROFESSIONAL SECRECY.

To the Editor of THE LANCET.

SIR,—Mr. Justice McCardie's ruling in a recent vorce case, by which he set aside the principle of ofessional secrecy and compelled a medical man to ve evidence as to syphilitic infection, will have an verse influence on the prevention and treatment of nereal disease. The explanation given, that in a urt of law there were "even higher considerations an those which prevailed with regard to the position medical men," is beside the point. The question not one of the position of medical men, but one of blic health. If persons infected with venereal disease e liable to have the fact published in the public press ey will avoid places of treatment where their names e registered, and will tend to resort to quacks. Again, e reason given for the abolition of secrecy in the case der discussion—to obtain evidence of cruelty—is ite inadequate. Every medical man who has had ch cases to deal with knows the difficulty, often the possibility, of tracing the source of infection, and any idence obtained is open to so many sources of error to be absolutely unreliable.

I am, Sir, yours faithfully,
C. F. MARSHALL, M.D., F.R.C.S.
Velbeck-street, London, W., Jan. 14th, 1920.

*** We have dealt in another column with the portant case referred to by our correspondent.—ED. L.

MEDICAL MEN IN PARLIAMENT.

To the Editor of THE LANCET.

SIR,—It will, I think, be of interest to your readers to ect their attention to the fact that the recent return of eutenant-Colonel F. E. Fremantle, F.R.C.S., F.R.C.P., Member for St. Albans, gives the medical profession representatives in the House of Commons, exclusive the two holding cabinet rank, and that of these no s than seven have accepted seats on the Council of is Federation. The recent elevation to the peerage Sir Bertrand Dawson, G.C.V.O., C.B., gives the ofession its only direct representative in the House Lords, and the new peer also has a seat on our uncil.

Colonel Fremantle, in writing to thank our Executive mmittee for the help it was able to afford him in the cent by-election, states: "My need was obviously rally all the forces I could muster to my aid, and no e answered the call more promptly or helpfully than l the Executive Committee of the Federation. I am re that the help it gave was of great value, and I like think that its congratulations are on the prospect of y being of some service both to the country and the ofession."

I am asked to thank all those who assisted the ndidate, at the request of the Federation, which is couraged by the result of the election, to make further deavours to increase medical representation.

I am, Sir, yours faithfully,
N. HOWARD MUMMERY,
General Secretary, British Federation of Medical and Allied Societies.
, Vere-street, W. 1, Jan. 9th, 1920.

SUBCUTANEOUS EMPHYSEMA IN PARTURITION.

To the Editor of THE LANCET.

SIR,—Mr. J. Good's letter in THE LANCET of Jan. 10th scribes a case of subcutaneous emphysema in parturin. I had a similar case myself while in charge of a our ward in a Poor-law infirmary some months ago.

The patient [redacted] a primipara, aged 19. She was extremely thoric and heavily built, but appeared, however, to be in perfect health. During the first and second stages of labour she made very violent efforts at delivery, and as these were unavailing I terminated labour with forceps under light chloroform anæsthesia. On the following day I found that there was a large area of subcutaneous emphysema covering the upper part of the chest. The distribution was bilateral. It extended upwards as far [redacted] the angle of the jaw on both sides, and downwards as far [redacted] the fourth intercostal space. It was especially noticeable in the region of the apices of the lungs. Crepitus was elicited over the whole of this area. During the next few days the patient coughed up a moderate quantity of frothy sputum, and the emphysema gradually disappeared. The temperature rose to 100° F. on the second day, and remained at about that level for three days. This condition was accompanied by a slight cystitis. The urine was alkaline, somewhat offensive, and contained a trace of albumin. At no time did the patient complain of any pain or distress.

At the end of three weeks both conditions had completely subsided, and the patient was discharged from hospital.

I am, Sir, yours faithfully,
J. W. CRAW.
Northwich, Jan. 12th, 1920.

A SAYING OF DR. GEE'S.

To the Editor of THE LANCET.

SIR,—In his interesting lecture, "The Dying-out of Native Races," reported in the last two issues of THE LANCET, Dr. W. H. R. Rivers quotes Dr. Gee as saying "Medicine has three parts: the first is diagnosis; the second is diagnosis; and the third is diagnosis." Dr. Rivers adds in a footnote that he has been unable to discover to whom this aphorism is originally due. Is it not probable that Dr. Gee was paraphrasing the dictum attributed to Demosthenes, who is said to have declared of his art, that it had three parts: the first was action; the second was action; and the third was action?

I am, Sir, yours faithfully,
THOMAS HORDER.
Harley-street, W., Jan. 11th, 1920.

"THE JUSTIFIABILITY OF THERAPEUTIC LYING."

To the Editor of THE LANCET.

SIR,—Dr. Hildred Carlill, in replying to Dr. C. S. Myers's letter in your issue of Dec. 27th, observes, in defence of the methods he adopted in the case he reported (THE LANCET, Dec. 20th, 1919), "that the principles of this treatment of 18 months ago differ in no way from those to which I would have consented in the case of similar illness in a member of my own family." This is certainly some support for Dr. Carlill's reasoning, but no justification for his therapeutic procedures. In trephining a patient for a disorder of psychical origin Dr. Carlill has converted a functional disorder into an organic disability, and, moreover, one which renders the patient handicapped for life.

Such treatment seems to me to be worse than the disorder against which it is directed, and in my opinion constitutes an unjustifiable procedure and a dangerous precedent. Dr. Carlill complains that Dr. Myers offers no alternative treatment. Almost any treatment would be preferable, even none at all. If the medical profession has to resort to trephining for mental disorder its therapeutic armoury must indeed be empty.

Dr. Myers doubts whether deliberate lying is ever justified in therapy, to which Dr. Carlill replies that "deception in one of its many guises will probably continue to be used by some doctors for some cases as long as treatment of disease lasts ......" While admitting the truth of this statement, it may be opportune to emphasise that treatment by "suggestion" is not synonymous with deceit, and psycho-therapy includes various procedures other than "suggestion." The methods Dr. Carlill utilised in treating his patient appear to have been confined to hypnotic suggestion and crude suggestion conveyed by deception. Such a course as the analysis of the patient's mind, in an endeavour to discover the mental elements underlying these attacks, does not appear to have been considered. The attempt to discover a psychological basis for a mental state seems to be more reasonable than the bludgeoning of a symptom by such a procedure as Dr. Carlill describes.

It would be interesting to see in what new guise the "relieved" symptom reappears.

I am, Sir, yours faithfully,

Queen Anne-street, W., Jan. 10th, 1920. IVO GEIKIE COBB.

"MIND AND ITS DISORDERS."

To the Editor of THE LANCET.

SIR,—It is not the function of an author to answer critical reviews of his work, and it is not my intention to reply to your reviewer of my third edition of "Mind and its Disorders."[1] Owing to the intrinsic nature of psycho-analysis any such work is bound to meet opposition and denunciation, and this always will be so; but on account of Dr. J. E. Nicole's letter, in your issue of Jan. 10th, I feel called upon to clear the ground for any discussion which may arise therefrom and to explain why, after adopting a Freudian psycho-pathology of the maniacal-depressive psychosis, I have retained the account of my old "intraneuronic intoxication" hypothesis of that disorder.

The reasons are mainly three. In the first place, the two views are not incompatible, for psycho-pathological experience reveals that mental mechanisms may and do sometimes produce quite remarkable organic changes in the tissues. Secondly, the psycho-analytic point of view is extremely difficult to convey; for example, that there is a logic of feeling as well as of reason. The number of people who are unable to view matters from a Freudian standpoint is therefore very large; and it was partly out of consideration for these that it was decided to include the other hypothesis, so that they would not be left "high and dry" without a working scheme. Lastly, supposing the "intraneuronic intoxication" hypothesis to be all wrong, my experience has been that it helps students to remember the signs and symptoms of mania, melancholia, and energic stupor for examination purposes.

My own view of the mechanism of the above psychosis is that the primary factors are purely mental, that these induce metabolic changes in the tissues, and that these changes react further upon the mind in the manner detailed in the book.

I am, Sir, yours faithfully,

Cavendish-square, W., Jan. 13th, 1920. W. H. B. STODDART.

THE PROBLEM OF VENEREAL DISEASE.

THE following statement has been sent to THE LANCET by the General Secretary of the National Council for Combating Venereal Diseases:—

A good deal of confusion has arisen in the public mind with regard to the distinction between the National Council for Combating Venereal Diseases and the recently formed Society for the Prevention of Venereal Disease. Both bodies take their stand on common ground in desiring the reduction and final elimination of the terrible scourge of syphilis and gonorrhœa from our national life. But they approach and deal with the problem from entirely different points of view. Basing their opinion on the findings of the Royal Commission on Venereal Disease and the experience gained during the war, the National Council contends that the strongest weapons available are, first, the education of all classes and sections of the community as to the causes, nature, and results of these diseases, and, secondly, the earliest possible treatment of infected persons. They also recognise that immediate local cleanliness after exposure to the risk of infection will reduce that risk, but, unfortunately, it is by no means an infallible preventive. Where propaganda stating that it is so has taken place, the amount of venereal disease has materially increased—vide the incidence among the Australian troops, starting as it did at 130 per 1000 and rising to 147 per 1000 as compared with the British troops' incidence of 38 per 1000. The Society for the Prevention of Venereal Disease consider that immediate self-disinfection is the only measure worthy of consideration from either a medical or social point of view. In this they are in disagreement witl the opinion expressed by Lord Sandhurst on behalf o the Government during the debate in the House o Lords on Dec. 10th, when he stated that "even i circumstances specially favourable to instruction in th method proposed the risk of venereal disease is by n means certainly avoided. ...... How much more, then would this be the case, and how far removed should w still be from secured immunity, with the civil population, in respect of whom the arrangements as to instruction and discipline adopted for the military woul obviously be quite impossible?" The same view i held by an almost unanimous majority of medica officers of health and clinic officers throughout th country. Many of those who support the policy of th Society for the Prevention of Venereal Disease bea illustrious names rightly honoured in the medical worl —but they do not represent those medical men an women who have had long and intimate experience o the practical problems involved in the successfu prevention and treatment of venereal disease. Th Society for the Prevention of Venereal Disease is therefore completely at variance with the National Counc in regarding immediate self-disinfection as the one an only practical measure by which venereal disease ca be exterminated. The National Council considers i but one of several weapons to be added to the armour of education and prompt treatment.

81, Avenue Chambers, Southampton-row, London, W.C. 1.

URBAN VITAL STATISTICS.

(Week ended Jan. 10th, 1920.)

English and Welsh Towns.—In the 96 English and Wels towns, with an aggregate civil population estimated a 16,500,000 persons, the annual rate of mortality, which ha been 14·6, 12·0, and 16·2 in the three preceding weeks, fell t 15·8 per 1000. In London, with a population slightly excee ing 4,000,000 persons, the annual death-rate was 15·7, or 1 per 1000 below that recorded in the previous week, whil among the remaining towns the rates ranged from 5·8 i Eastbourne, 6·2 in Wolverhampton, and 7·0 in Merthy Tydfil, to 24·6 in Sunderland, 25·7 in Bootle, and 26·5 i Grimsby. The principal epidemic diseases caused 337 death which corresponded to an annual rate of 1·1 per 1000, and comprised 107 from measles, 87 from diphtheria, 60 from infanti diarrhœa, 51 from whooping-cough, 26 from scarlet feve 5 from enteric fever, and 1 from small-pox. Measles cause a death-rate of 1·5 in Plymouth and in Preston, 1·6 in Leed 1·7 in Darlington, 2·0 in Dewsbury, and 3·8 in Bootle; an diphtheria of 1·3 in Walthamstow and in Wigan. Th fatal case of small-pox was registered in Gateshead. Th 73 deaths from influenza were 21 in excess of the numb in the previous week, and included 16 in London, 10 i Birmingham, 5 in Leeds, and 4 in Newcastle-upon-Tyn There were 2809 cases of scarlet fever, 1899 of diphtheri and 2 of small-pox under treatment in the Metropolita Asylums Hospitals and the London Fever Hospital, again 2926, 1873, and 0 respectively at the end of the previou week. The causes of 51 deaths in the 96 towns we uncertified, of which 7 were registered in Birmingham, 6 i London, and 4 in St. Helens.

Scotch Towns.—In the 16 largest Scotch towns, with an aggr gate population estimated at nearly 2,500,000 persons, th annual rate of mortality, which had been 13·2, 14·8, and 15 in the three preceding weeks, further rose to 16·6 per 100 The 402 deaths in Glasgow corresponded to an annual rate 18·8 per 1000, and included 9 from measles, 4 from dip theria, and 3 from infantile diarrhœa. The 97 deaths i Edinburgh were equal to a rate of 14·8 per 1000, and include 2 each from measles and diphtheria and 1 from infanti diarrhœa.

Irish Towns.—The 138 deaths in Dublin corresponded an annual rate of 17·3, or 2·7 per 1000 below that recorded i the previous week, and included a fatal case each of scarl fever and infantile diarrhœa. The 150 deaths in Belfa were equal to a rate of 18·9 per 1000, and included 19 fro measles, 3 from scarlet fever, and 1 from infantile diarrhœ

BRISTOL DISPENSARY.—At the annual meeting this charity Mr. Fenwick Richards retired after many year energetic service as chairman and treasurer amid gener regret. This charity, which supplies domiciliary as well out-patient treatment, is in low water financially and i premises are in need of repair. The new chairman is M Norman Wills, a younger representative of the family th has done so much for Bristol, his brothers, Mr. H. H. Wil and Mr. G. A. Wills, being presidents of the Royal Infirma and the General Hospital respectively.

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[1] THE LANCET, Dec. 20th, 1919, p. 1143.

Medical News.

UNIVERSITY OF CAMBRIDGE: DIPLOMA IN RADIOLOGY AND ELECTROLOGY.—Under the auspices of the Fellowship of Medicine and Post-Graduate Medical Association the British Association of Radiology and Physiotherapy have arranged a series of lectures in radiology and electrology, qualifying for the Cambridge Diploma, to be given at the house of the Royal Society of Medicine, 1, Wimpole-street, London, every Monday and Wednesday at 5.30 P.M., commencing Feb. 2nd, 1920. The opening lecture will be given by Dr. W. J. Turrell of Oxford, who will deal with the history of electrotherapeutics. For those wishing to take the diploma the fee for the course is £15 15*s.*, with the additional enrolment fee of 10*s.* 6*d.*, to the Fellowship of Medicine and Post-Graduate Medical Association, but members of the Fellowship Post-Graduate Course are invited to attend any of the lectures advertised. A detailed syllabus will be issued shortly, and all information can be obtained from Miss M. A. Willis, Secretary to the Fellowship of Medicine and Post-Graduate Association, 1, Wimpole-street, London, W.

The Psychological Laboratory.—The Committee for the management of the Cambridge University Diploma of Psychological Medicine announces that examinations for the diploma will be held for Part I. in October, 1920, and for Part II. in December, 1920. A course in preparation for these examinations will be held at the Cambridge Psychological Laboratory from July 19th to August 29th inclusive, and will be conducted as follows:—

Part I.—Psychology, with practical work, J. P. Lowson, M.A., M.D.; Anatomy and Physiology of the Nervous System, with practical work, E. D. Adrian, M.A., M.D.

Part II.—Abnormal Psychology, J. F. E. Prideaux, M.D.; Psychiatry, Lunacy Law, and Asylum Administration, M. A. Archdale, M.D., Superintendent of the Cambridge County Asylum.

The fees are: For Part I., £5 5*s.*; for Part II., £4 4*s.* Further information may be obtained from the Director of the Cambridge University Psychological Laboratory.

UNIVERSITY OF LIVERPOOL.—The diploma in Public Health has been awarded to Dr. A. J. W. Cunningham, Dr. R. W. Gemmell, and Dr. D. S. A. O'Keeffe.

KING'S COLLEGE (UNIVERSITY OF LONDON): PSYCHOLOGICAL DEPARTMENT.—A course of eight lectures on psycho-pathology will be delivered by Dr. William Brown, reader in psychology in the University of London, at King's College, Strand, W.C., on Mondays, at 5.30 P.M., beginning on Jan. 26th. Although not open to the general public, the lectures may be attended by medical students and qualified medical practitioners without fee or ticket.

KING'S COLLEGE HOSPITAL (UNIVERSITY OF LONDON): POST-GRADUATE INSTRUCTION IN SYPHILIS.—A course of lectures on syphilis will be given by various members of the staff of King's College Hospital during the ensuing year, commencing Jan. 30th. They will be given on Fridays, at 9.15 P.M., in the Lecture Theatre in the Medical School, and will be illustrated [illegible] far as possible by cases, demonstrations of technique, and by the epidiascope. Each branch will be dealt with by a member of the staff with special experience of the subject, and it is hoped that a complete presentment of modern teaching on syphilis, and especially of those aspects which are of interest to practitioners, will be given. Those taking the course can also attend, by arrangement, for clinical teaching and practical instruction. The fee for the course is £3 3*s.*, to be paid to the secretary of the Medical School, from whom all information can be obtained and the syllabus of the lectures.

THE SCIENTIFIC AND INDUSTRIAL RESEARCH DEPARTMENT.—The secretary of the department announces that the Research Association for the British Launderers' Industry has been approved by the department as complying with the conditions laid down in the Government scheme for the encouragement of industrial research. This concession is not surprising when regard is had to the fact that the business of the launderer is essentially a chemical one. The cleansing of dress fabrics by such materials as soaps, bleaches, reducing agents, and stain-removing solutions must be based on scientific lines if good results are to be got, rendering the processes involved effective economically while leaving the material uninjured. The question also of making dirty linen macroscopically and microscopically clean is clearly of sanitary importance. The association is to be registered [illegible] a non-profit-sharing company, the secretary of the committee engaged in its establishment being Mr. J. J. Stark, 162–5, Bank Chambers, 329, High Holborn, W.C. 2.

LITERARY INTELLIGENCE.—The sixth edition of Herman's "Difficult Labour," announced for publication by Messrs. Cassell and Co., has been brought up to date by Dr. Carlton Oldfield, honorary obstetric surgeon to the Leeds General Infirmary. Some enlargement has been found necessary and many new illustrations have been added.

FOUR lectures on the Animal Parasites affecting Man and the Diseases caused by Them will be delivered by Sir Robert Armstrong-Jones, at Gresham College, Basinghall-street, London, E.C., at 6 P.M., on Tuesday, Jan. 20th, and the three following days. Admission will be free and the lectures on Jan. 21st and 22nd will be illustrated by lantern slides.

ROYAL MICROSCOPICAL SOCIETY.—The annual meeting of the society will be held at 20, Hanover-square, London, W., on Wednesday next, Jan. 21st, at 8 P.M., to receive the annual report of the council and for the election of council and officers for the ensuing year. Mr. J. E. Barnard, the President, will deliver his address on the Present Status of Microscopy.

A STATE MEDICAL SERVICE.—The members of the Marylebone Division of the British Medical Association will discuss to-day (Friday, Jan. 16th), at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, "The Future of the Medical Profession under a Salaried, Whole-time State Medical Service." The chair will be taken by Dr. C. O. Hawthorne, and the discussion will be opened by Professor Benjamin Moore, M.D., D.Sc., F.R.S. (of the State Medical Service Association), and Sir Wilmot Herringham, K.C.M.G., C.B.

PEOPLE'S LEAGUE OF HEALTH.—The supporters of the People's League of Health meet at Claridge's Hotel, Brook-street, W., on Tuesday next, Jan. 20th, at 3 P.M., to discuss and further the objects of the League. Among the speakers will be Miss Olga Nethersole, the original founder and honorary organiser of the League; Sir Alfred Fripp, K.C.V.O.; Mr. E. B. Turner, F.R.C.S., chairman of the Medical Committee of the National Council for Combating Venereal Disease; Miss Damer Dawson, O.B.E., chief officer of the Women's Police Service; and Mrs. Bramwell Booth. Lord Burnham will take the chair.

HIGH BIRTH-RATE IN NORWICH.—One of the results of the end of the war, due, of course, to the return of the soldiers, is manifested in the increasing birth-rate. There were 88 births registered in Norwich in the first week of January, corresponding to an annual rate of 37·8 per 1000, as compared with a rate of 12 per 1000 in the same period last year. The deaths at all ages during the week in question amounted to 35, corresponding to an annual death-rate of 15 per 1000, as compared with a rate of 19·3 per 1000 last year. If this satisfactory balance exists and can be maintained all over the kingdom, there should be no fear of any material decrease in our population.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly meeting of the Council was held on Jan. 8th, Sir George H. Makins, the President, being in the chair.—Mr. Herbert S. Pendlebury was introduced, and having made a declaration in the terms of the oath prescribed by the Charter of 1800, was admitted [illegible] Member of the Court of Examiners.—The President reported that Sir Charters J. Symonds had consented to deliver the next Hunterian oration, and accordingly he declared him to be appointed Hunterian Orator for 1921.—The President reported that Mr. John Murray's term of office on the Court of Examiners would expire on Feb. 11th, and that the vacancy thus occasioned would be filled up at the Council meeting on Feb. 12th. Mr. Murray is eligible for re-election.—The President reported that no essay for the Jacksonian prize had been received.—The thanks of the Council were given to Mr. E. Muirhead Little for presenting to the museum a collection of skiagrams and photographs illustrating the pathology of stumps. The Council proceeded to the consideration of the report of the Committee on the annual report of the Council regarding the proceedings at the annual meeting of Fellows and Members in November. It was decided to appoint a committee to consider the question of the representation of Members on the Council.—Sir Charters J. Symonds was nominated a representative of the College on the Council of Queen Victoria's Jubilee Institute for Nurses for a period of three years from March 1st, 1920.—A letter was read from Sir D'Arcy Power, reporting his attendance as the representative of the College at the annual meeting of the Court of the University of Sheffield.—A letter was read from Mr. J. Herbert Parsons and Mr. M. S. Mayou, forwarding a copy of a memorandum drawn up by the Committee appointed by the Commissioner of Police of the Metropolis to consider the question of standards of sight requisite for licensed vehicle drivers, upon which Committee they were nominated by the College to serve.

KENT LOCAL MEDICAL AND PANEL COMMITTEES.—We have received from Messrs. Larking and Larking, clerks to the Committees, copies of circular letters sent out to panel practitioners in Kent. The letter, dated Jan. 10th, and signed by Dr. Frank Coke, medical secretary, requests the practitioner to sign an enclosed resignation from the Kent panel list, giving the usual statutory six weeks' notice. "Our negotiations with the Kent Insurance Committee enabled us," the letter runs, "to agree upon terms which we should have had no hesitation in advising practitioners to accept," but "the wishes of both the Kent Insurance Committee and of our Committees have been entirely ignored and overruled by the Ministry of Health." The letter was the outcome of a meeting of the Local Medical and Panel Committees held on Jan. 7th, when the following resolution was passed, 26 of those present voting for it and 1 abstaining:—

> "That the secretary be instructed to put into operation forthwith the Kent scheme of organisation for refusal of services under the Insurance Acts until the terms of service offered are satisfactory, and especially as a protest against (1) the legal disabilities; (2) the depreciation of capital value of practices; and (3) the hampering of efficient medical practice entailed by the New Regulation."

The chief provisions of the scheme referred to are as follows:—

> Firstly, that in no circumstances is there to be any refusal of treatment to any sick person. Secondly, that resignations are to be collected and placed in the hands of your Committees, but are not to be used until after a ballot of all those resigning. Thirdly, that previous to the final ballot being taken, a clear statement of all the facts with the names of those resigning shall be sent to all panel practitioners in each area. Finally, that in no case are resignations to be used unless your Committees are confident that they have sufficient resignations in any particular place or small district to affect the purpose at issue.

The letter concludes thus: "The capitation fee has not yet been fixed. Nevertheless, if the practitioner has not, by the middle of February, definitely notified his resignation from the panel, he will be held to have accepted both the new regulations and the old, and they will come into force on April 1st."

A COMPLIMENTARY luncheon is to be given to Sir Henry Gauvain by friends who wish to mark the honour recently conferred upon him in recognition of his work for the Cripples' Hospital and College at Alton. Sir William Treloar will preside.

ST. MARY'S HOSPITAL MEDICAL SCHOOL DINNER.—The annual dinner of the St. Mary's Hospital Medical School, postponed from last October, was held at the Connaught Rooms on Jan. 9th. Sir Almroth Wright was in the chair and some 150 past and present students attended. Among the guests present were Sir John Goodwin, Sir Bertrand Dawson, as he was styled, Sir Humphry Rolleston, Sir John MacAlister, and Sir StClair Thomson. It was the first dinner held since 1913 and was therefore even more in the nature of a reunion than usual; the shadow of the war was reflected in the speeches of the chairman and Sir John Broadbent, dean of the school, while Sir John Goodwin referred in glowing terms to the services of St. Mary's men in every theatre of war. In replying to the toast of "The Medical School," the dean spoke optimistically of its present position and future prospects. The school had been thrown open on equal terms to men and women, an experiment which had proved a success. The lack of adequate class-room and laboratory accommodation was being felt severely, and steps were being taken to improve the medical school buildings. Important advances had been made in the scientific work of the hospital; the various departments of pathology and bacteriology had been amalgamated to form one Institute of Pathology under the general direction of Sir Almroth Wright, and the heads of the various departments were being put upon the staff of the hospital. A scheme had been drawn up to establish teaching and research units in medicine and surgery, and to this end an affiliation had been carried out with the Paddington Green Children's Hospital, the Maida Vale Hospital for Nervous Diseases, and the Paddington Infirmary, so that the teaching facilities offered by these institutions were now available for St. Mary's students. This affiliation, quite apart from the opportunities it gave for the study of neurology and children's diseases, provided nearly 1000 beds for clinical teaching, and, in conjunction with the opportunities for scientific teaching and research given by the new Institute of Pathology, should establish St. Mary's as one of the most important institutions for medical education in London. Sir Bertrand Dawson paid a tribute to Sir Almroth Wright's scientific achievements, and in the course of his speech pointed out that the medical profession now occupied a more important position in the general community than ever before. He made an appeal to medical men to cease from worrying about detail and to concentrate on broad principles of work and policy.

THE new headquarters of the British Dental Association at 23, Russell-square, London, W.C., will be opened by Dr. Addison, the Minister of Health, on Friday next, Jan. 23rd, at 3.15 P.M.

THE annual dance of the University College Hospital Medical Society will be held at Princes Galleries on Wednesday, Feb. 11th, at 9 P.M. Tickets (£1 1s.) may be obtained from the Secretary.

CHELTENHAM REUNION DINNER.—A reunion dinner of the medical men of Cheltenham and district who had served with the R.A.M.C. was held on Jan. 10th at the Lansdown Hotel. Dr. J. Rupert Collins was in the chair, and among those present were Dr. Braine-Hartnell, Dr. Barret Cardew, Dr. Sanderson Clow, Dr. D. Clow, Dr. Conder, Dr. Cox, Dr. Lidderdale, Dr. Longridge, Dr. Macfie, Dr. Meyrick-Jones, Dr. Moore, Dr. O'Leary, Dr. Park, Dr. Peake, Dr. Pearson, Dr. Allman Powell, Dr. H. Powell, and Dr. Curtis Webb. The usual toasts were duly honoured and a most enjoyable evening was passed. It was unanimously decided that the dinner should be made an annual one.

GREAT NORTHERN CENTRAL HOSPITAL.—The King's concert for the patients of the Great Northern Central Hospital, Holloway, was held in the Islington Victoria Ward on Jan. 13th. The arrangements were made by the Ladies' Association of the Institution, the artists being Misses Lily Clare and May Windsor, Messrs. Rex Howard, Charles Conyers, and Norman Long. Lord Northampton, chairman of the hospital, expressed the thanks of the committee of management for the Royal interest in the institution, and mentioned that the expenses of the concert were being defrayed by the King. It was resolved to send the following telegram to His Majesty at Sandringham:—

> "The patients of the Great Northern Central Hospital humbly thank Your Majesty for the excellent entertainment provided this evening, and offer their humble duty on the occasion."

ST. THOMAS'S HOSPITAL OLD STUDENTS' DINNER.—At the annual dinner held after a break of five years, nearly 200 past students foregathered at the Connaught Rooms, London, to renew old friendships and to do honour to Sir George Makins, President of the Royal College of Surgeons, who occupied the chair. After the chairman had proposed success to the Hospital and Medical School in a few well-chosen words, dwelling on the exploits of the past and the hopes of the future, Sir Arthur Stanley replied, as the treasurer of two years' standing. Whatever the fate of the voluntary hospitals was to be, he intended that St. Thomas's should have a good run for its money, or, as Dr. Addison suggested later, for other people's money. Sir Cuthbert Wallace, who responded as dean of the Medical School, after enumerating the many honours gained by St. Thomas's men during the war, spoke with enthusiasm of the introduction of the professorial system into the school, the facilities for research which attended it, and the opportunity it offered of breaking down the inveterate insularity of the metropolitan medical schools. The war memorial was to take the form of a hostel designed to aid the collegiate life of the school. St. Thomas's, he suggested, might well be more conscious of its own worth and of the lamp which had been kept burning for a thousand years or more in Bermondsey and Southwark. Dr. Addison said that it did not pass the wit of man to devise some scheme whereby the State might help and receive help from the voluntary hospitals without destroying their character, and he did not fear for the finance of St. Thomas's in the hands of its determined, enlightened, and ruthless treasurer. He put in a special plea for scientific and laboratory equipment, and a proper payment of the expert staff. The evening closed with the proposal of the chairman's health by Mr. Samuel Osborn and the ovation which followed.

HOSPITAL ACCOMMODATION IN BIRMINGHAM.—A novel proposal concerning the organisation of hospitals administered by boards of guardians is being considered. Members of the Birmingham board of guardians have met members of the General and Queen's Hospitals to discuss proposals with regard to the future use of the Dudley Road and Selly Oak Infirmaries. The former building, with 1200 beds, was until recently the 2/1st Southern General Hospital and is now available again for civilian use. It is not anticipated that the whole of the accommodation at these two buildings, totalling 1650 beds, will be required for the purpose of a Poor-law infirmary, and a scheme of reconstruction applicable to post-war conditions is under consideration. At present there are more than 1000 patients on the waiting lists of the voluntary hospitals, and it is possible that such accommodation for medical and surgical patients may be made in the infirmaries as will relieve the pressure on the other hospitals. Such a proposal must necessarily have important bearings upon the future of voluntary hospitals and raise difficult questions such as the payment of medical staffs.

BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—Dr. Addison, Minister of Health, will receive a deputation from the Federation at 11.30 A.M. on Friday next, Jan. 23rd. The deputation desires to place before him certain aspects of the larger questions of the provision of efficient medical services for the community, and will be introduced by Sir W. Watson Cheyne, Bart., M.P., who will be accompanied by other medical Members of Parliament.

A thanksgiving service for the passing of the Nurses Registration Acts will, by the kindness of the Vicar, the Rev. H. R. L. Sheppard, be held at St. Martin's-in-the-Fields, on Friday next, Jan. 23rd, at 7.15 P.M. An address will be delivered by the Rev. A. H. R. Robinson, Mus. B. (Precentor), and during the singing of the hymn which follows an offertory will be collected. After defraying the expenses of the service the balance of the money will be given to the Trained Nurses Annuity Fund.

The Services.

ARMY MEDICAL SERVICE.

Major-Gen. H. Carr retires on retired pay.

Colonels from the half-pay list retiring on retired pay: G. T. Rawnsley, T. B. Beach.

Temp. Col. Sir H. J. Stiles (Bt. Lieut.-Col., R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

Major F. E. Rowan-Robinson relinquishes the acting rank of Lieutenant-Colonel.

Temp. Major C. E. Ligertwood relinquishes the temporary rank of Lieutenant-Colonel on re-posting.

Capt. L. C. Hayes to be temporary Major whilst specially employed.

The undermentioned Captains relinquish the acting rank of Major: W. T. Hare, E. C. Lambkin, J. S. McCombe.

Capt. and Bt. Major J. D. Kidd to be acting Major.

Capt. P. H. Wells resigns his commission.

L. C. E. Murphy, late temporary Captain, to be temporary Captain.

Officers relinquishing their commissions:—Temporary Captains granted the rank of Major: D. C. Ogilvie, J. P. Davidson, R. B. Roe, F. H. Moxon, R. S. S. Statham, E. T. C. Milligan, J. W. McKinney, R. Jamison. Temporary Captains retaining the rank of Captain: C. Harris, A. C. MacKay, J. R. Stott, C. W. Macpherson, M. Sommerville, H. N. Crossley, W. A. Alexander, R. N. Thomson, W. Campbell, J. G. Lessey, M. Rust, T. M. Anderson, S. C. R. Flaxman, W. J. Symes, C. F. Davey, C. C. Harrison, A. G. Howson, J. F. Penman, M. H. Watney, A. P. Green, P. J. Montgomery, E. D. F. Hayes, C. Murphy, E. T. Jameson, E. G. D. Murray, R. R. K. Paton, C. A. O'Driscoll, K. D. Falconer, A. Gaston, W. J. Moir, A. R. H. Geyer, R. W. Miller, C. J. C. Macquarie, H. B. McCaskie, D. R. Adams. Temp. Lieut. J. A. Martin (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. A. G. McColl relinquishes his commission and retains the rank of Captain.

Lieut. A. B. Grant to be Captain.

TERRITORIAL FORCE.

Capt. (acting Lieut.-Col.) H. N. Barnett relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capts. (acting Majors) G. B. Eadie, N. W. Kidston, and K. I. S. Smith relinquish the acting rank of Major on ceasing to be specially employed.

Capt. V. T. Ellwood is restored to the establishment.

Lieut. (temp. Capt.) W. L. H. Duckworth ceases to serve with the Cambridge University Contingent (Medical Unit), Senior Division, and relinquishes the temporary rank of Captain.

2nd Eastern General Hospital; Major F. G. Bushnell is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Flying Officers to be Flight Lieutenants: D. Cromie, J. B. Barnett, C. H. Young.

Squadron Leader E. G. R. Lithgow (Major, R.A.M.C.) relinquishes his temporary R.A.F. commission on return to Army duty.

Wing Commander J. St. J. Murphy (Surgeon Commander, R.N.) and Flight Lieut. E. Hefferman (Surgeon Lieutenant, R.N.) relinquish their temporary R.A.F. commissions on return to Naval duty.

The undermentioned are transferred to the unemployed list: Capts. J. Paxton, J. R. Adam, J. H. Cooke, A. B. Rooke, J. S. Dockrill; Lieut. J. Gorsky.

INDIA AND THE INDIAN MEDICAL SERVICE.

The following are appointed to civil employment from military duty: Major and Bt. Lieut.-Col. M. Mackelvie to be Civil Surgeon. Major H. B. Foster, Civil Surgeon. Major H. B. Steen, Civil Surgeon, but will continue to act as Surgeon Superintendent of the Presidency General Hospital, Calcutta. Major O. St. John Moss, Civil Surgeon, but will continue to hold his present appointment. Major F. A. F. Barnado, Civil Surgeon. Major R. E. Lloyd, Civil Surgeon. Lieut.-Col. W. H. E. Woodwright, Officiating Inspector-General, Civil Hospitals, Bengal, on being relieved reverts to Civil Surgeon, Bareilly. Capt. R. V. Clarke, R.A.M.C., has been appointed to hold Civil Medical Charge of Roorkee, in addition to his own duties. Major R. Kelsall is posted permanently under Burma Government. Miss Anne Siret to be Obstetric House Surgeon, King George's Medical College, Lucknow, as a temporary measure, vice Miss M. E. Glancy granted leave. The following officers have reverted to the Civil Department: Lieut.-Col. F. H. Watling and Major O. Berkeley Hill to Bihar and Orissa; Major H. A. Williams and Major J. Good to Burma; Major G. Fowler to the Central Provinces; Lieut.-Col. J. H. Hugo to Foreign and Political Department; Major W. S. Patton to Madras; Major S. R. Christophers to Central Research Institute, Kasauli; Lieut.-Col. B. R. Chatterton to Bihar and Orissa; Lieut.-Col. J. W. Grant and Lieut.-Col. L. J. M. Deas to Foreign and Political Department; Lieut.-Col. C. A. Gill to the Punjab; Major C. E. Palmers and Major J. E. Clements to the United Provinces; Lieut.-Col. H. Burden, Chief Medical Officer, Baluchistan, has been given one year's leave; Lieut.-Col. M. Curry to be Superintendent of the District Jail, Ferozepore; Lieut.-Col. H. Smith, C.I.E., Civil Surgeon, is posted to Amritzar on return from leave.

COMMISSIONS IN THE ARMY FOR DENTISTS.

The War Office is asking for the services of dental practitioners, including those who have already served, who are desirous of undertaking duty with the Army. Candidates with not less than a year's previous service will be commissioned to the rank of Captain, all others as Lieutenant. The term of engagement will be for 12 months or until no longer required, and the pay will be £600 per annum for Captains and £550 for Lieutenants, together with free rations, travelling allowances and expenses, kit, and outfit allowance of £30 if joining for the first time, and additional pay of £50 per annum when serving outside Europe. Candidates, who must be fit for service at home or abroad, should apply to the Secretary, War Office, A.M.D. (1), Cornwall House, Stamford-street, S.E. 1.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. F. S. Arnold, Berkhamsted; Sir R. Armstrong-Jones, Lond.

B.—Mr. F. Breckin, Cheam; Dr. J. Blomfield, Lond.; Board of Education, Lond.; Dr. H. S. Banks, Motherwell; British Federation of Medical and Allied Societies, Lond., Gen. Sec. of; Sir A. Bowlby, Lond.; Prof. A. E. Boycott, Lond.; Dr. N. Barnett, Bath; Dr. G. F. Barham, Woodford Green.

C.—Dr. E. L. Collis, Cardiff; Sir John Collie, Lond.; Mr. A. L. Candler, Exeter; Mr. H. Chaffer, Eastbourne; Cremation Society of England, Lond.; Messrs. Cassell and Co., Lond.; Dr. C. Chidell, Folkestone; Chicago School of Sanitary Instruction.

D.—Dr. G. H. Dart, Lond.; Dr. T. V. Dickinson, Ellel Grange; Messrs. Down Bros., Lond.; Dr. F. Dévé, Rouen; Messrs. W. Dawson and Sons, Lond.; Mr. E. M. Davies, Rochdale; Prof. L. Doncaster, Liverpool; Dr. H. G. Dixon, Lond.

E.—Prof. Dr. Engel, Dortmund; Dr. W. A. Evans, Keighley; Miss E. Evans, M.B., Cardiff.

F.—Factories, Chief Inspector of, Lond.

G.—Great Northern Central Hospital, Lond., Sec. of; Mrs. Grieve, Chalfont St. Peter.

H.—Mr. H. W. Holman, Lond.; Mr. E. Hindle, Cairo; Mr. H. T. Hicks, Derby; Dr. Houdart, Ile de Bréhat; Hunterian Society, Lond.; Mr. W. W. Hardwicke, Lond.; Mr. L. G. H. Horton-Smith, Lond.

K.—Dr. D. Keilin, Cambridge; Mr. G. A. King, Croydon; Dr. D. Knocker, Lond.

L.—Dr. R. J. Lee, West Drayton; League of Red Cross Societies, Geneva; Mr. V. W. Low, Lond.

M.—Ministry of Health, Lond.; Dr. J. A. C. Macewen, Lond.; Miss H. M. M. Mackay, Lond.; Dr. J. A. Murray, Lond.; Dr. W. A. Muir, Wallasey; Dr. Reginald Morton, Lond.

N.—Dr. J. T. Neech, Halifax; Newcastle-on-Tyne, Tuberculosis Medical Officer; National Safety Council, Chicago.

O.—Dr. C. M. O'Brien, Dublin.

P.—Dr. D. S. Page, Lond.; Dr. A. G. Phear, Lond.

R.—Mr. S. C. Ranner, Lond.; Dr. W. T. Ritchie, Edinburgh; Royal Mail Steam Packet Co., Lond.; Röntgen Society, Hon. Treasurer of; Royal Institute of Public Health, Lond.

S.—Sir Arthur Stanley, Lond.; *Surbiton Times*, Editor of; Dr. W. D. Sutherland, Calcutta; Dr. C. F. Sonntag, Lond.; Dr. C. Slater, Tunbridge Wells; Mr. F. B. Shawe, Fulneck; Scientific and Industrial Research Dept., Lond.

T.—Mr. C. W. J. Tennant, Lond.

W.—Mr. R. L. M. Wallis, Lond.; Dr. A. C. Wilson, Formby; War Office Publicity Dept., Lond.; Welfare Workers' Institute, Lond., Gen. Sec. of.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, Jan. 22nd.—3.30 p.m., Special General Meeting, the Prince of Wales having expressed his intention to attend for admission into the Society.—4.30 p.m., Ordinary Meeting. Papers (among others):—Mr. S. Marsh: On Alternating Current Electrolysis (communicated by Prof. E. H. Griffiths).—Mr. S. D. Carothers: Plane Strain. The Direct Determination of Stress (communicated by Prof. A. E. H. Love.)—Mr. F. Horton and Ann C. Davies: An Investigation of the Effects of Electron Collisions with Platinum and with Hydrogen, to ascertain whether the Production of Ionisation from Platinum is due to Occluded Hydrogen (communicated by Mr. C. T. R. Wilson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Jan. 20th.

SPECIAL GENERAL MEETING OF FELLOWS: at 5 p.m.

To consider, and if approved to confirm, proposal by the Council that the following new By-law be enacted, viz.:—

"In view of certain anomalies and consequent hardships to Fellows and Members of Sections arising out of conditions resulting from the War, the Council is authorised to deal with all such questions at its discretion, the provisions of other By-laws notwithstanding, but such special power shall be limited to a fixed period, namely, from 1st January to the 31st December, 1920. If at the end of that period it shall seem desirable or necessary to continue the powers hereby granted they may be continued for another period not exceeding six months by vote of three-fourths of the Members of the Council present and voting at such Meeting of the Council called for the purpose of considering the question. At the end of the period or periods fixed, it shall be lawful to omit this temporary By-law from the By-laws of the Society."

To be followed immediately by a

GENERAL MEETING OF FELLOWS:

Ballot for Election to the Fellowship. (Names already circulated.)

Wednesday, Jan. 21st.

OCCASIONAL LECTURE: at 5 p.m.

Surgeon-Commander K. Digby Bell, R.N.: The Position of the Medical Profession with Regard to National Physical Education.

MEETINGS OF SECTIONS.

Tuesday, Jan. 20th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—Philip Hamill, Douglas Cow); at 4.30 p.m.

Discussion:

On "The Therapeutic Uses of Oxygen," to be opened by Mr. J. Barcroft, C.B.E., F.R.S.

Colonel Cummins, C.B., C.M.G., Dr. C. G. Douglas, Dr. J. S. Haldane, F.R.S., Dr. P. Hamill, Dr. G. H. Hunt, Dr. R. H. Peters, Dr. Ryle, Dr. F. Shufflebotham and Dr. G. H. Sowry will also speak.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones); at 8.30 p.m., to be held at the Imperial Cancer Research Laboratories, 8, Queen-square, W.C. 1.

Mr. W. H. Woglom: Industrial and Experimental Pitch Warts.

Mr. A. H. Drew: Oxidation Process in Normal Tissues and Cancer.

Mr. W. E. Gye and Dr. B. R. G. Russell: Conditions of Survival of Tumour Cells *in vitro*.

Dr. W. Cramer: Action of Uranium Salts on Tumour Cells.

Dr. J. A. Murray: Return-autologous Grafting of Tumours after Transplantation in Normal Animals.

Friday, Jan. 23rd.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 p.m.

Exhibition of Cases.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, M. Greenwood): at 8.30 p.m.

Papers:

Dr. F. G. Crookshank: Principles of Epidemiology.

Dr. Cleland and Dr. Campbell: Epidemiology of Acute Encephalomyelitis.

Dinner will be provided at the Welbeck Palace Hotel at 7 p.m. (price 7*s.* 6*d.*). It is specially requested that those intending to dine will send names to Dr. M. Greenwood, Lister Institute, Chelsea, S.W. 1, not later than Wednesday, Jan. 21st.

TUBERCULOSIS SOCIETY, at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

Monday, Jan. 19th.—8 p.m., Paper:—Dr. Gauvain: Surgical Tuberculosis from the Point of View of the Tuberculosis Officer. Followed by a discussion. Ordinary Business Meeting of the Society will follow.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, Jan. 20th.—4.30 p.m., Pathological Specimens. Cases sent for Consultation. Clinical Cases will be shown by Dr. J. L. Bunch, Dr. W. Griffith, Dr. E. J. D. Mitchell, Dr. S. Kapoor, Dr. Eva White, Dr. D. Vinrace, The President, Dr. W. K. Sibley, and Dr. P. J. Edmunds.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

Wednesday, Jan. 21st.—4.30 p.m., Paper:—Mr. A. H. Powell: Ancient Cottages and Modern Requirements.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

Wednesday, Jan. 21st.—8 p.m., Annual Meeting. Annual Report of Council and Election of Council and Officers for the ensuing year. Presidential Address:—Mr. J. E. Barnard: The Present Status of Microscopy.

HARVEIAN SOCIETY, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

Thursday, Jan. 22nd.—8.15 p.m., Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Six Hunterian Lectures on John Hunter's Observations and Discoveries in Anatomy and Surgery (illustrated by his specimens and preparations).

Monday, Jan. 19th.—5 p.m., Prof. A. Keith: I., His Contributions to Our Knowledge of the Heart and Blood-vessels.

Wednesday.—5 p.m., Prof. A. Keith: II., His Contributions to Our Knowledge of the Lungs and Pleuræ.

Friday.—5 p.m., Prof. A. Keith: III., His Contributions to Our Knowledge of the Alimentary System.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.

Thursday, Jan. 22nd.—4.30 p.m., Lecture III.

LONDON HOSPITAL MEDICAL COLLEGE (University of London), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Monday, Jan. 19th.—9.15 a.m., Lecture II.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)

Wednesday.—10 a.m., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 a.m., Lecture III., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, Jan. 19th.—11 a.m., Out-patients: Dr. Goodall. 2 p.m. In-patients: Dr. Moon.

Tuesday.—2 p.m., Out-patients: Dr. R. Wells. 3 p.m., In-patients: Dr. Gibbes.

Wednesday.—2 p.m., Out-patients: Dr. Moon. 5.30 p.m., Lecture:—Dr. R. Wells: Aortic Disease.

Thursday.—10 a.m., In-patients: Dr. Hamill: 2 p.m., Out-patients: Dr. Price.

Friday.—2 p.m., Out-patients: Dr. Gibbes. 2.30 p.m., In-patients: Dr. Wells.

Saturday.—10.30 a.m., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, at Poplar Dispensary for the Prevention of Consumption, 135, Bow-road, E.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Jan. 22nd.—5 p.m., Lecture II.:—Dr. T. D. Lister: A Practical Demonstration of the Work of a Tuberculosis Department at Poplar.

GRESHAM COLLEGE, Basinghall-street, E.C.

Tuesday, Jan. 20th, Wednesday, Thursday and Friday.—6 p.m., Lectures:—Sir Robert Armstrong-Jones: The Animal Parasites affecting Man, and the Diseases caused by them (illustrated by lantern slides).

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, Jan. 19th.—3.30 p.m.; Dr. Nutt: Demonstration of X Ray Apparatus.

Tuesday.—4 p.m., Dr. Hay: Methods of Examination of Eye.

Wednesday.—3.30 p.m., Dr. Wilkinson: Common Forms of Sore Throat.

Thursday.—3.30 p.m., Dr. Skinner: General Considerations in Dermatology.

Friday.—4 p.m., Dr. Hay: Methods of Examination of Eye (continued).

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

Wednesday, Jan. 21st.—4.15 p.m., Mr. B. Ward: Gonorrhœa in the Male. (Lecture I.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Jan. 20th.—4.30 p.m., Lecture:—Dr. A. Ramsbottom: Chorea.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Jan. 26th.—2–3.30 p.m., Out-patient Clinic: Dr. Collier. 3.30 p.m., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. III.

Tuesday, Jan. 27th.—2–3.30 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Ward Cases: Dr. Risien Russell.

Wednesday, Jan. 28th.—2 p.m., Mr. Scott: Auditory Vertigo and Forced Movements. 3.30 p.m., Dr. Greenfield: Pathological Demonstration.

Thursday, Jan. 29th.—2–3.30 p.m., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 p.m., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. IV.

Friday, Jan. 30th.—2–3.30 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Ward Cases: Dr. Tooth.

Saturday, Jan. 31st.—9 a.m., Surgical Operations.

Fee for Post-Graduate Course £7 7*s.* C. M. Hinds Howell, Dean.

Appointments.

Everett, H. F., L.R.C.P. & S. Edin., L.F.P.S.G., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Hadleigh.

Hutt, C. V., M.D., B.C. Camb., D.P.H. Oxon., Medical Officer of Health for Richmond, Surrey.

Kadinsky, Z. S., M.R.C.S., L.R.C.P. Lond., Surgical Registrar to the Westminster Hospital.

Smith, Edwin, M.D. Lond., Barrister-at-law, Deputy Coroner for Westminster and S.W. London District.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. and H.P. £175 and £150 respectively.

Bermondsey Medical Mission for Women and Children.—Female Res. Asst. M.O. £200.

Birkenhead Borough Hospital.—Two Hon. Asst. M.O.'s.

Birkenhead Union.—Asst. Res. M.O. £300.

Birmingham Children's Hospital.—P. to Out-patients and S.

Birmingham City Mental Hospital, Rubery Hill, near Birmingham.—First and Second Asst. M.O.'s. £500 and £400.

Birmingham, City Fever Hospital, Little Bromwich.—Asst. M.O. £300.

Birmingham General Hospital.—Clin. Path. £600.

Bristol, Beach House Estate Sanatorium.—Res. Supt. M.O. £800.

Bristol Royal Infirmary.—Clinical Pathologist. £250.

Bristol University.—Demonstrator of Path. £200.

Bury Infirmary, Lancs.—Jun. H.S. £150.

Capetown, City of.—Female Asst. to Health Dept. £650.

Cape Town University, Faculty of Medicine.—Chair of Bio-Chemistry. £800

Cardiff, King Edward VII. Hospital.—H.S. and H.P. £200.

Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.

Derby, Derbyshire Royal Infirmary.—H.P. £200.

Derbyshire Education Committee.—Sch. M.O. £500.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £200–£225.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dudley, Guest Hospital and Eye Infirmary.—Vacancy on Hon. Surg. Staff. Also two Hon. P.'s.

Edinburgh, Scottish Board of Health.—M.O.'s.

Elizabeth Garrett Anderson Hospital, Euston-road.—Jun. Asst. P., Path., Asst. Path. Also Clin. Asst. £1 1s. per attendance.

Enham Village Centre, Andover, Hants.—Asst. Med. Direct. £600–£700. Neuro. M.O., £350.

Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.—Sen. M.O.'s. £600 each.

Gold Coast and Sierra Leone.—Dent. S. £500.

Great Northern Central Hospital, Holloway, London, N.—Two P.'s. Also Dental S.

Greenwich Union Infirmary, Vanbrugh Hill, East Greenwich, S.E.—Asst. Med. Supt. £300.

Hartlepool Union.—Asst. Res. M.O. £350.

Herefordshire General Hospital.—H.S. £200.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. 30 guineas.

Hospital for Sick Children, Great Ormond-street, London, W.C.—H.S. £50.

Hull Royal Infirmary.—H.P. £200.

Kensington Tuberculosis Dispensary, 119, Ladbroke-grove, W.—M.O. £500.

King's College Hospital, Denmark-hill, S.E.—M.O. to Gonorr. Dept.

King's Lynn, West Norfolk and King's Lynn Hospital.—H.S. £150.

Leamington Spa, Borough of.—M.O.H. £650.

Lewes, East Sussex County Council Education Committee.—Jun. Asst. Sch. M.O. £450.

Lincoln County Hospital.—Junior H.S. £200.

Lindsey County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £450.

Liverpool, County Asylum, Rainhill.—Asst. M.O.'s. £300.

Liverpool Stanley Hospital.—H.P. and S. £150 each.

London Fever Hospital, Islington, N.—Locum Tenens Asst. M.O £7 7s. per week.

London Temperance Hospital, Hampstead-rd., N.W.—Anæsth. 25 gns.

Maidstone, West Kent General Hospital.—H.P. £200.

Manchester, Ancoats Hospital.—H.P. £150.

Manchester, Whitworth Park Hospital.—H.S. £100.

Metropolitan Hospital, Kingsland-road, E.—Asst. P.

Middlesbrough Education Committee.—Asst. Sch. M.O. £500.

Middlesex County Council.—Temp. Tuberc. M.O. £600.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. Cas. O. Also H.S. £100.

Natal Provincial Administration.—Med. Inspect. and Asst. Med. Inspect. of Schools. £800 and £600.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Medical and Hon. Surg. Registrars.

New Zealand, Auckland Hospital.—Bact. and Path. £900.

Norwich City.—Asst. M.O.H. £300.

Paddington Green Children's Hospital, London, W.—S. to Eye Dept., P. to Skin Dept., and P. to Out-patients.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. P.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. S.

Royal Free Hospital, Gray's Inn-road, W.C.—Asst. M.O.'s in Venereal Diseases (Female) Dept. £250 and £150 respectively. Female Res. Obst. O. (£150), Res. Obst. H.S. (£50), Res. Obst. Asst. (£150).

St. Helens, Lancs, The Pilkington Special Hospital.—Asst. £500.

St. Mary's Hospital, Paddington.—First Asst. Pathol. £500.

Salford Royal Hospital.—Cas. H.S. £150.

Salisbury Municipality, Rhodesia, S.A.—M.O.H. £600

Scarborough Education Committee.—Sch. Dent. S. £250.

Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh Gardens, N.W.—Med. Supt. £400.

Sheffield City Education Committee.—Asst. Sch. M.O. £450. Sch. Dental S. £400.

Sheffield Royal Infirmary.—Asst. H.P. and H.S. £150 each.

Sheffield University.—Demonstrator in Path. and Bact.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.S. £100. Female Clin. Assts.

Stannington (Northumberland) Children's Sanatorium. — Res Female M.O. £250.

Straits Settlements.—Res. M.O. £840.

Straits Settlements and Federated Malay States.—M.O.'s.

Swansea County Borough.—Asst. M.O.'s. £600 and £500.

Swindon, Borough of.—Asst. M.O.H. £500.

University of London, South Kensington.—External Examiners.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.

Wakefield, Clayton Hospital.—Jun. H.S. £150.

Wakefield, West Riding County Council.—School Oculist. £550.

Westminster Hospital, Broad Sanctuary, S.W.—Asst. P. Also Two Hon. Administrators of Anæsth.

Whittingham County Asylum, Preston, Lancs.—Asst. M.O. £420.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Abergele, Buckie, Castle Hedingham, Clogher, Hastings, Hoylake, Leicester (East), Leyland, Nelson, Northallerton, Okehampton, and Wakefield.

Births, Marriages, and Deaths.

BIRTHS.

BRUNTON.—On Jan. 12th, at Purey Cust Nursing Home, York, to Lucy M. Brunton, M.B., wife of G. L. Brunton, M.D.—a son.

DICK.—On Jan. 10th, at a nursing home, Sevenoaks, the wife of R. J. Dick, M.D., of a son.

READE.—On Jan. 12th, at 35, Criffel-avenue, Streatham-hill, S.W. 2, Violet Reade, M.R.C.S., L.R.C.P., wife of Arthur G. L. Reade, O.B.E., Surgeon-Lieutenant R.N.V.R., of a son.

MARRIAGES.

WIRGMAN—STIVEN.—On Jan. 6th, at St. Mary Abbot's, Kensington, Charles Wynn Wirgman, M.D., F.R.C.S., to Beryl Annie Mabut Stiven, youngest daughter of the late E. W. F. Stiven, M.D., and Mrs. Stiven, of Inverness-gardens, W.

RELTON—SINTON.—On Jan. 8th, at the Parish Church, Harpenden, Charles Duncan Relton, M.B., B.S., Captain, R.A.M.C. (T.F.), to Grace Agnes, elder daughter of Mr. and Mrs. James Sinton, of Wynyates, Harpenden, Herts.

DEATHS.

BERNAYS.—On Jan. 6th, suddenly, at the Royal Victoria Hospital, Dover, Charles Murchison Bernays, M.R.C.S., L.R.C.P. (late R.A.M.C.), aged 39.

DAUNT.—On Jan. 6th, at Hastings, Dr. Wm. Daunt, aged 51.

HAMERTON.—On Jan. 11th, at Russell-square, after four days' illness from pneumonia, George Albert Hamerton, M.D., F.R.C.S.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

CONSTABLE AND CO., London.
Altitude and Health. By F. F. Roget. Pp. 186. 12*s*.

COPE AND FENWICK, London.
Colour and Health. A Symposium edited by the Rev. J. J. Pool. Pp. 163. 5*s*.

LEHMANN, J. F., Munich.
Grundzüge der Hygiene. By Dr. W. Prausnitz. Pp. 761. M.23.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Die Erhaltung des Kindeslebens in der Geburt. Von Prof. Dr. W. Benthin. Pp. 111. M.3.
Kurz gefasste Praktische Bakteriologie für Ärtze und Studierende. Von Dr. L. Paneth. Pp. 158. M.8.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£1	16	0
	Six Months	0	18	0
	Three Months	0	9	0
ABROAD	One Year	£2	0	0
	Six Months	1	0	0
	Three Months	0	10	0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2

ADVERTISEMENT RATES.

Books and Publications Official and General Announcements Trade and Miscellaneous Advertisements	Four Lines and under... 5*s*. 0*d*.

Every additional line, 1*s*.

Quarter Page, £2 10*s*. Half a Page, £5. Entire Page, £10.

Special Terms for Position Pages

Advertisements (to ensure insertion the same week, should be delivered at the Office not later than Wednesday) accompanied by a remittance.

Notes, Short Comments, and Answers to Correspondents.

TWO EAST-END HOSPITAL APPEALS.

THE Special Appeal Committee of the Queen's Hospital for Children, Hackney-road, E., points out that this hospital will be compelled to close two wards containing 62 beds within three months unless funds can be obtained to pay off the deficit. The closing of the wards would deprive 800 little invalids from the poorest parts of London of the medical and surgical treatment which is afforded annually. The appeal is signed by, among others, the Earl of Shaftesbury, the Duke of Newcastle, the Bishop of London, the Chief Rabbi, and Lord William Cecil. The institution is over £10,000 in debt, and an additional £5000 per annum is required if the hospital is to be kept at its pre-war standard. At least 40,000 mothers take their children there in sickness and accident during the year, the attendances in the casualty and out-patient departments numbering over 10,000, and the demands on the 170 beds are always most pressing. Cheques, which should be made payable to the Queen's Hospital for Children and crossed "Barclay's Bank," should be sent to the secretary at the hospital, Hackney-road, Bethnal Green, E. 2.

At a "victory" dinner on behalf of Queen Mary's Hospital for the East End (incorporating the West Ham and Eastern General Hospital), held at Liverpool-street Hotel on Jan. 8th, the chairman, Mr. C. E. Leo Lyle, M.P., said that there was an immediate need for more beds. The local War Memorial Fund had provided £30,000 for extensions, but an increased annual income was needed for maintenance. A new nurses' home which was required would cost £30,000. A friend had given £10,000 for a maternity wing, but an additional £10,000 was required, together with a similar sum for extending the out-patient department. During the evening subscriptions were announced amounting to £5000 towards an appeal for £10,000 on behalf of the general fund.

THE HUMAN BELLOWS.

A CORRESPONDENT writes calling our attention to the demand made upon private nurses by their patients to blow up air-cushions by applying their mouth to the valve, and suggests that this dirty and obviously dangerous habit has been forced upon nurses by the omission on the part of the makers of air-cushions to supply any means of inflating them. We entirely agree with our correspondent that no nurse should be asked to put her mouth directly to a valve which may have been soiled by the patient or infected by a previous blower. But we note that at least one instrument-maker supplies a small bellows for cushions and pillows, and houses must now be few and far between where a bicycle pump would not be available for the purpose. It is, of course, open to any nurse, who does not object in principle to act as a bellows, to use a piece of indiarubber-tubing as an adaptor, sterilising the tubing, or, at all events, keeping it for her own particular use.

SURVIVAL OF QUADRUPLETS.

To the Editor of THE LANCET.

SIR,—Authentic instances of quadruplets being very rare (THE LANCET, Dec. 13th and 20th last), the case, as follows, which occurred in the practice of my late father—Dr. John Vinrace, of Birmingham—may be of interest. The mother was a primipara, aged 18, and single, and within about two hours gave birth to quadruplets at full time or nearly so. Two were born alive, but died within the day, and of the two born dead one was a monster (preserved in Queen's College, Birmingham). Subsequently the couple married and three or four normal pregnancies ensued, but no further plural birth.

I am, Sir, yours faithfully,
DENNIS VINRACE.

Gower-street, W.C., Jan. 13th, 1920.

METRIC PRESCRIBING.

To the Editor of THE LANCET.

SIR,—Please permit one who has had many years' experience in metric prescribing to offer a few suggestions to those who use or may contemplate using the same in lieu of the old and now obsolete imperial system.

(1) In prescribing, adopt the continental custom of placing the denomination instead of the decimal point between the integer and fraction. For instance, 8 g. 5 instead of 8·5 g., and 2 cg. 5 instead of 2·5 cg. By acting thus we write the amount as it is spoken. In decimal-using countries no one would say "eight point five grammes" any more than they would say "eight point five francs," but "eight grammes five" and "eight francs fifty."

(2) Fluid quantities under half a mil. are prescribed in drops.

(3) In dealing with small weights—i.e., under a gramme—the centigramme denomination will be generally found most convenient, and will not require so many figures as if expressed in grammes. But it is advisable to avoid, if possible, mixing grammes and centigrammes in the same prescription, as changing the denomination disturbs continuity of thought as conveyed by the vertical line of figures.

(4) Decigrammes and decimils. are only academical, and are not used in practice.

(5) It will be found more convenient to order 10 pills or powders rather than 12, as the calculations required can then be made by, mentally or otherwise, moving the point. But 12 may be ordered by the simple addition of a sixth to each quantity.

(6) For small doses, or where exactitude in dose is called for, as imperial equivalents, the gramme may be taken as 15½ grains, the millilitre (or c.cm.) as 17 minims (actually 16 min. 95). As metric equivalent the grain may be taken as 6 cg. 5 (actually 6 cg. 48). For larger doses, where a few grains more or less is of no consequence, the gramme and the mil. may be taken as equivalents. For very minute doses, as, for instance, for hypodermic use, to convert 1/10 and 1/100 to metric we move the point one or two places to the left; thus we get 0 cg. 65 and 0 cg. 065 (or, using the milligramme denomination, 6 mg. 5 and 0 mg. 65). Intermediate quantities are simply a matter of ordinary calculation.

(7) In prescribing a mixture for an adult, by taking the gramme and mil. as equivalent to 16 grains and 16 minims, which are near enough approximates, an 8-oz. bottle containing 16 doses suits our purpose, for by it we can transpose grains and minims to grammes and mils. at once, without any calculation. For instance, if we wish to order 10 gr. or 10 min. doses, in an 8-oz. mixture, we should prescribe 10 g. or 10 mils. respectively. In a 6-oz. mixture (of 12 doses) we should prescribe three-quarters of these amounts—namely, 7 g. 5 or 7 ml. 5, and for a 3-oz. mixture half, and so on from size to size. When prescribing for infants we choose a 2-oz. mixture of 56 mils. for the same reason because of its containing 16 teaspoonsful. If we wish to order, say, ½-min. doses of vin. ipec., we should prescribe for a 2-oz. mixture 8 drops.

(8) The approximate sizes of English bottles as at present made are: 1 oz. = 28 mils.; 2 oz. = 56 mils.; 3 oz. = 85 mils.; 4 oz. = 113 mils.; 6 oz. = 170 mils.; 8 oz. = 227 mils.; 10 oz. = 284 mils.; 12 oz. = 341 mils. These figures are given without their fractions, which, ranging from 5 to 10 drops, need only be treated as negligible quantities.

I am, Sir, yours faithfully,
W. WRIGHT HARDWICKE, M.D.

Coulson-street, S.W., Jan. 12th, 1920.

WANTED—AN APPOINTMENT.

To the Editor of THE LANCET.

SIR,—Undoubtedly the subject of this letter might well be expected to make her wants known through the advertisement columns, but I am hoping that my knowledge of her circumstances will gain her the advantage of the insertion of this letter.

An Englishwoman, widow of an American physician, 42 years of age, highly educated in England and on the Continent, holding the best certificates in foreign languages, and speaking French, Italian, and German, requires a resident or non-resident appointment to assist a medical man in any way. She has literary experience, she has managed the business and secretarial side of her late husband's work, who was a specialist in nervous diseases, and she has excellent references.

I am, with anticipatory thanks,
Yours faithfully,
M.D.

THE United States Public Health Service have issued a notice that *B. tularense*, an organism isolated by McCoy and Chapin from rodents suffering from a disease resembling plague, also infects man. It has been found by Dr. Francis that "deer-fly fever," a disease which occurs in rural districts in Utah and which causes fever and inflammation of glands, is due to the organism.

WE are asked to state that the "Central Welfare Supervisors Association" no longer exists as such, but has amalgamated with two other welfare workers' societies to form the "Welfare Workers' Institute," of which the general secretary is Miss E. B. Voysey, B.A., and the address 11, Adam-street, London, W.C. 2. A monthly magazine is to be issued by the institute dealing with all matters relating to industrial welfare.

A Lecture

ON

'ULMONARY AND OTHER FORMS OF TUBERCULOSIS:

OME FACTS, THEORIES, AND HYPOTHESES.

Delivered at the Brompton Hospital,

Y H. BATTY SHAW, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, AND TO THE BROMPTON HOSPITAL FOR DISEASES OF THE CHEST.

GENTLEMEN,—In this lecture it is proposed to onsider some of the truths connected with tuberulosis, to pursue them to their logical end, and lso to consider various theories and hypotheses onnected with the subject. By a fact we mean a ruth—a reality—something which may be tested, n this direction and that, and always found to be he same. On such facts progress can be made afely. It is necessary, however, to remember that hypothesis is only a hypothesis—it is only a upposition. It is possible to advance our nowledge, working on a hypothesis, even when it s shown that the hypothesis was not in accordance vith truth. Sometimes the importance of facts licited by working on a hypothesis is so great that he hypothesis almost rises to the dignity of a fact. t is very desirable to keep clearly separated facts nd hypotheses. A theory has been defined as an xplanation of natural phenomena founded on facts nown to be true from evidence independent of hose phenomena or appearances. As in the case f a hypothesis, a theory which turns out to be vrong may lead to the discovery of many facts which therwise would not be discovered. We know that he atomic theory is wrong; but what an immense mount of discovery and progress have been made, cting on the belief that the atomic theory was orrect. Not all wrongly conceived hypotheses nd theories have led to progress: some of them ave actually prevented progress, so that when new ypotheses and theories are put forward they hould be very carefully tested by skilled critics, nd inquiries based upon their acceptance should be carefully planned.

THE TUBERCLE BACILLUS.

The most cardinal fact connected with tuberculosis is that the *B. tuberculosis* causes tuberculosis of the body, especially of the lungs, producing (*a*) miliary tuberculosis; (*b*) massive or confluent pneumonia; and (*c*) the development of fibrosis, as seen in the familiar scarred apices of the lungs, if the tuberculosis of the lung is mastered. The discovery of the pathogenicity of the tubercle bacillus has never been gainsaid; this fact, which Koch published, has been confirmed over and over again.

It has been assumed that the *B. tuberculosis* is responsible for what we call consumption—that is to say, of the cases of destructive lung disease of a subacute or chronic character which are known to every family practitioner. A support for this hypothesis is that tubercle bacilli are so often present in the sputum derived from such patients. But if the sputum is studied to find what other organisms are present, it is well known to contain harmless saprophytes, several other pathogenic organisms, and even putrefactive organisms. One of the most common pathogenic organisms is the staphylococcus; there is also the streptococcus and the pneumococcus—all organisms capable of producing pus. The tubercle bacillus in its most characteristic lesions produces a very special cellular reaction which undergoes a change to form the so-called grey or white tubercle, and this may be surrounded by fibrous-tissue reaction, or the whole mass be converted into a caseated or calcareous mass. It does not seem that the tubercle bacillus is a pus-producer like the ordinary pyogenic organism. It is a much more reasonable hypothesis to believe that the pus of the expectoration is due to other organisms than the tubercle bacillus. We know on extensive observation how frequently the animal body may be actually infected by the tubercle bacillus, and yet succeed in reducing the harmfulness of the latter to nil.

We may indulge in a further hypothesis, and believe that a lung which is already damaged by the existence of tubercle bacilli is no longer able to resist attacks made by the other organisms which are found in the sputum of a tuberculous subject. This hypothesis is almost raised to the dignity of a theory when it is recalled how frequently tuberculosis of the lungs seems to date from an attack of bronchial catarrh. Some would consider such a theory an established fact; but before it may be considered such it is necessary to know by control the number of cases in which tuberculosis seems to date from a certain period which was not marked by the existence of bronchial catarrh.

HÆMOPTYSIS IN TUBERCULOSIS.

A second fact is one which has been confirmed over and over again—hæmoptysis is very frequently followed, after a long or short interval, by pulmonary tuberculosis, or by consumption. It is a well-known fact that the expectoration at the time of the hæmoptysis may reveal no tubercle bacilli. Are we right in supposing that every case of hæmoptysis, in which, say, half a drachm, or a drachm of blood, or more, is coughed up during a day on two or three successive days, is a case of pulmonary tuberculosis or of consumption? It is quite evident that before we make a diagnosis that this is the sort of hæmoptysis which leads to pulmonary tuberculosis or to consumption we must exclude the ordinary causes of what is known as pseudohæmoptysis. If the hæmoptysis amounts to mere streakiness, or staining of the sputum, is occasional, and has been observed over long periods, amounting to months, we are justified in hesitating in believing that such hæmoptysis means as surely ultimate consumption or pulmonary tuberculosis as if it had been a more copious bleeding.

Pathological studies show us that the *B. tuberculosis* invading an artery is more inclined to produce thrombosis, following endarteritis, with occlusion of the vessel, than to cause suppuration in the walls of the vessel with weakening of it, and the formation of an aneurysm or rupture. In other words, we may suppose that hæmoptysis reduced to its residual value as a symptom is also an expression of the mixed infection which occurs in the lungs, already the seat of tuberculosis. Can this hypothesis be exalted into a fact by appeals to experimental research? So far as I know, this has not been done; but we do know that the course of tuberculosis of the lungs is slower and more benign in people who live in warm, dry climates, or in country districts, or in elevated areas, and we presume that this is due to the fact that there is less catarrh of the bronchi in these circumstances than in opposite ones. Moreover, we meet with very severe hæmoptysis in lung conditions which are not due to the *B. tuberculosis*—e.g., in some cases of pneumonia, in bronchiectasis, in abscess, and in gangrene of the lung. We thus find that there is considerable support for the theory that the destruction of lung tissue and of arterial walls in consumption is more a direct result of mixed infection than of a pure tuberculous infection.

THE APICAL CAVITY IN DIAGNOSIS.

Those who have to do with the examination of many chests state that quite a considerable number of cases occur in which cavities are found at the apices of the lobes of the lung; this is a well-established fact. But now we have to admit that some very sweeping hypotheses have been built upon this fact. One is that such cavities occurring at the apices of lobes indicate that the lungs are certainly the seat of pulmonary tuberculosis, which has given rise to consumption. The result is that the mere existence of a cavity or cavities justifies many physicians in diagnosing consumption. Other observers, since the presence of tubercle bacilli in the sputum, even after repeated examinations, cannot be established in the patients revealing these cavities, persist in a still further hypothesis that tuberculosis was the origin of the cavity formation, and that mere cavity formation was dependent upon a prior evacuation of all the dead tissue and of the tubercle bacilli which caused the death of the tissue. The position taken up by these observers appears unassailable, and the frequency with which consumption is accompanied by excavation of the apices raises these hypotheses to the dignity of theories. In former days, before the use of the microscope, or of inoculation experiments to prove tuberculosis of the lungs, was introduced, no doubt a great amount of suffering was alleviated by treating all patients revealing apical cavities as consumptives.

Modern research shows that the theory was too sweeping, and it is an acknowledged fact now that cavities may form in any part of the lungs, entirely independently of tuberculosis. Cavity formation in the lung may quite well be immediately dependent upon the colliquative processes caused by mixed infection, rather than upon the direct effect produced by the tubercle bacillus.

UNIVERSALITY OF INFECTION IN THE YOUNG.

Another fact which is so well known to many of us that we have become over-familiar with it, is that a very large number of children—indeed, probably *all* children—living under the conditions of civilisation, are infected by the *B. tuberculosis.* They do not necessarily suffer from the infection, because the lesions produced do not materially disturb the bodily functions. The children, in a sense, though not the true sense, of course, are "carriers" of the tubercle bacillus. In many cases they are destroyed by tuberculosis, and we know that some of the most acute and classical forms of pure tuberculosis—namely, miliary tuberculosis, occur in childhood. It looks as if the joint disease of childhood, tuberculous peritonitis and the tuberculous infections of the intestinal tract, are due to the operations of the bovine form of the *B. tuberculosis.* But we must not forget the fact that children are not only susceptible to the bovine form of tuberculosis taken in with food, but that they are equally liable as adults to take the human tubercle bacillus into their systems through the respiratory tract. And while we are discussing this subject we cannot but ask the very vital question as to the relationships of the bovine to the human form of the tubercle bacillus. I am not capable of answering the question whether these two organisms are two absolutely different types, or whether the bovine tubercle bacillus, by long residence in the human body, may not assume the cultural morphological and pathogenic characters of the human tubercle bacillus. Contemporary bacteriology admits that this question is not settled; it is quite an open one. It remains a fact, then, that children are universally infected by the tubercle bacillus of the human form, and in a certain proportion of them, varying in amount, according to different observers, are also infected with the bovine tubercle bacillus. One observation points to the universal infection by this organism, because a tuberculin reaction was found in every adult examined, and it is a common observation in the post-mortem room to see active or involuted tuberculosis in such a large number of cases who have died of some other malady. If my remarks sound over-emphasised upon this widely accepted fact (amongst pathologists) of the universal infection with the tubercle bacillus of human beings living in conditions of civilisation, I must ask you to make allowances on the ground that I think that the subject of tuberculosis has become popularised too much, or should I say has been only partially popularised. It is more palatable to a lay audience to listen to the accounts of the marvellous cures which have come as a result of this, that, or the other treatment. It is not at all palatable, and lay men and women would not be tempted to join associations for the study of this disease if they were told the whole truth. Even the business men who help to work our hospitals are much more susceptible to the stimulating effects of the publication of alleged cures than of the failures. Nor, if I may be allowed to say so to you, do I think you gentlemen, when you leave our hospitals and our post-mortem rooms and accept positions as tuberculosis officers, take sufficient pains to keep before you what pathology has taught you. Like you, I am not a pathologist; but after suffering very much disappointment following upon the small results, if any, obtained by sanatorium treatment, by the dispensary method, by so-called notification, I am asking myself and you to-day to get rid of enthusiasm and look at some bare facts.

To continue with my immediate subject, let us consider how the theory or fact of universal infection with the tubercle bacillus is borne out by some common experiences. We have all had the experience of treating a child for tuberculous glands and later on finding that child, in the adult stage, suffering from pulmonary tuberculosis. An out-patient appeared here not long ago limping on one leg, the opposite knee partially flexed and ankylosed. I recognised his face and recalled to him the fact that 16 years ago I had helped as a dresser to look after his tuberculous right knee. I also recalled to myself being sent by my surgical chief to find a physician to report on the condition of this patient's chest. The physician saw the case and told me he could find no signs of active tuberculosis, but, being a sound student of medicine, he would not commit himself and say there was no active tuberculosis in the lungs. When I examined the patient recently he had fully developed consumption. It seems to me reasonable to think that the tuberculosis which expressed itself in the knee 16 years ago was expressing itself in the lungs now, and that it was not a reinfection from outside, but from inside, which led to the lung trouble.

PROBABLE TUBERCULOUS NATURE OF "IDIOPATHIC PLEURISY WITH EFFUSION."

Similar experiences recur so frequently that I hink quite a number of us, particularly those whom we call experienced members of our proession, who have a much more thorough knowedge of the course of tuberculosis in the human animal than comparative beginners, like yourselves and myself, could give many stories showing how a uberculous subject may show invasion of this, hat, or another system at successive periods hrough a fairly long life. Are we really at the present day quite satisfied as to the genesis of the so-called idiopathic pleurisy with effusion, as it occurs in the young? It is so well known that many of these cases will ultimately develop consumption that insurance companies shy at them. There may be no sputum in such cases, or, if there s any, neither it nor the effusion shows tubercle bacilli. Only once have I ever had the opportunity of seeing the pleura in such a case. The patient concerned died three to four days after the removal of a pleural effusion; the pleura was found covered with millions of grey or white tubercles. Fortunately many of these cases of tuberculous pleurisy with effusion seem to put off pulmonary tuberculosis and consumption for many years; but only too often these diseases supervene eventually. I think we *must* feel that we all harbour the tubercle bacillus, and its activity may be revealed at various periods of life; once, or more than once, in the same tissue or organ, or in different ones; or the organism may lie dormant throughout the whole of life. It is quite true that I do not know what is the condition of the human body between these various manifestations of this latent tuberculosis. So I must simply call it a theory.

THEORY OF REINFECTION.

There is another theory which to my mind is not so near the truth as the one we have just been considering. There are those who consider that though so many children may be infected by the tubercle bacillus they master the infection completely, and are no longer tuberculous. If later on in life they show a tuberculous lesion, such as a tuberculous arthritis, this is due to a fresh infection from outside! The tuberculous arthritis recovers, the tuberculosis is again mastered. If spinal caries shows itself later on, or a tuberculous disease of the urinary system, or at a long last tuberculosis of the lungs, each is due to a fresh reinfection! My reason for asking you to consider these two hypotheses very closely is that I think it is so important that you should make up your minds on the point, because your attitude towards the treatment of tuberculosis and the management of your patients is so vitally influenced according to the view you hold. You may say that so far as you can see, neither hypothesis has been exalted into a fact, or even to a theory, and it is useless to act as if either was true, to the exclusion of the other. Before you finally take up this non-committal attitude you must realise that by doing so you are not going to be of much use to your patients. Moreover, your patients will soon find you out, and you will be left with two alternatives, to be non-committal and tell the whole story to each patient, and a few will remain content; the rest will suspect you, and rely upon the help of someone who holds one or other view whole-heartedly. I need hardly say that some will fall into the hands of practitioners who do not know which view they hold, or, following the policy of "hunting with the hounds and running with the hare," hold whichever view is convenient at the moment.

THEORY OF AUTO-INFECTION.

I will put before you one or two further points which influence me very much, and have confirmed me in the belief that probably in a large majority of the cases reinfection takes place from within. I think it has been your experience, as it has been mine, to be present at an operation on the abdomen, which has been undertaken for quite a different purpose, and that purpose has been carried out, but at the same time well-marked lesions of a tuberculous character, sometimes active and sometimes inactive, have been found as well. The wound has been closed and the patients appear to have recovered absolutely. Such a fact as this, coupled with the fact that we so often find inactive and active tuberculous lesions in the bodies of patients, who die of some other complaint, has converted me to the view that a single, or repeated tuberculous manifestation is but the expression of a reinfection of this, that, or the other tissue from a deposit, dormant hitherto, of tuberculosis laid down in childhood. I do not deny that in some cases reinfection may take place from outside, either as a result of a small or large dose of fresh tubercle bacilli entering the system when the resistance for the time being is low; but I think this is exceptional.

The other hypothesis has been run recently for all that it is worth, and because we are not finding an improvement in the figures, say, of cases of development of pulmonary tuberculosis, the hypothesis has become suspect, and there is a change of the pendulum to the more stable position taught by pathology. Do not mistake me: I do not wish to see a return to expectoration in our railway-carriages or buses, or on the pavements of our streets. I do not want to abolish the sputum flask or the sputum pot. Indeed, I do not want to abolish anything which is good-mannered, as opposed to bad-mannered; but what I do hope to see is a marked reaction against the hypothesis of reinfection from outside, so that the liberty and comfort of the patient afflicted are not curtailed.

The critical layman, listening to this difficulty of ours, and knowing that our profession is divided, one part believing that in the majority of cases reinfection takes place from within, and the other believing the opposite, and neither group of physicians being able to produce evidence which could convert either hypothesis into a fact, would probably come to the conclusion that we modern physicians are not far removed from our predecessors who combined some medical knowledge with a large amount of reliance upon mere creeds. I think such criticism would be unfair, for after all we admit the shortcomings of our present knowledge, and admit, too, that what we have been doing in recent years is to try to see what will happen with our tuberculous patients if our treatment, prophylactic or curative, of the tuberculous person was based on the hypothesis of reinfection from without. Some of us suspected failure from the outset; an increased number of us view it with suspicion now because evidence is not forthcoming that tuberculosis is being lessened in incidence or in severity as a result of the establishment of tuberculosis dispensaries, of notification, and of the segregation in sanatoriums and other institutions of the tuberculous subject. This is exactly what we should expect if we confessed that the cure of tuberculosis has not been found, that the tubercle bacilli gain access to civilised humanity universally in childhood, and that in a great majority of cases if tuberculosis of any organ develops in later life, this is but reinfection from within the body from foci of the disease already established.

Doubtful Value of Sanatorium Treatment.

Let us turn now to another fact which I owe to a colleague. He has lived through the period before sanatoriums were introduced, and he has lived through the period when sanatoriums and sanatorium methods have been in vogue. He tells me that to go round the Bromptom Hospital wards now and compare the condition of our patients there with that of the patients admitted to the wards before the days of the introduction of open-air methods would convince anybody that the newer methods of open-air management were curing our cases of pulmonary tuberculosis. To his mind this is a fact, and he is supported by the increased efforts being made to establish more sanatoriums in this country, and by the fact that the nation has spent something like £5,000,000 since 1912 in effecting the cure of tuberculosis on these lines. He is also supported by the well-attested observation that the modern type of tuberculous patient lives infinitely longer than a consumptive of former days. He pointed out how rare it is to find amongst our patients those who were drenched in perspiration, who were expectorating large amounts of sputum, running high temperatures, and gradually developing lardaceous disease. I could support this statement, and say that in seven years' work in the wards here it was rare to see a case of advanced consumption, that relatively few patients die in the hospital—many less than used to do—and I have never seen a case who has died reveal lardaceous change in the post-mortem room. I should be very glad to acknowledge that I was convinced by my colleague that this wonderful change was all due to open-air methods. But there is an obvious fallacy, because in former days this hospital was founded and used for the admission of consumptive patients—in other words, for the very patients who are now almost excluded. We should expect that those patients would be very ill when admitted to the hospital, that many of them would die in the hospital; for it is well known that the life of a consumptive was, and still is, a comparatively short affair. If you visit the wards of the hospital to-day you would be struck by the healthiness of the patients, by the number of them who have no fever and are allowed to be up and about every day—even all day. Some of them have pulmonary tuberculosis, and are being "shepherded" into the Frimley Sanatorium, if they are able to do physical work, or into the sanatoriums provided by the State if not able to work. Others of them are merely taken in for observation, and I think I may say that the reason for the admission of some of these latter cases is sometimes that the patient has symptoms which, on careful general examination, can be referred to disorder of some other system than the lungs, but which have in error been referred to those organs, and to tuberculosis of those organs. Some patients are admitted for being under weight, for debility, for anæmia, because these symptoms are associated with a history of cough or of tuberculosis in some other member of the family. Can it be wondered at, then, that the material in the wards of this hospital at the present day shows so much less invalidishness than before sanatorium methods were introduced? Can it be wondered at that deaths are fewer here, and that the patients admitted here live longer than they used to do? Only a few cases of advanced consumption are ever admitted to the wards of this hospital now, and pressure is brought to bear to have them discharged as soon as possible. The Insurance Act then deals with these patients, and labels them "fit for domiciliary treatment," and they are sent to our infirmaries or homes for the dying, or, where the relatives can afford or prefer it, they are allowed to return to their own homes.

So I hope you see that the fact which my colleague insisted upon is far from being *proved* to be a fact. It appears to be a fact not because open-air treatment is curing our patients when other methods fail, but because an infinitely healthier group of patients is being subjected to open-air methods than ever was submitted to the treatment, whatever it was, which was in vogue in this hospital formerly.

Unreliability of Statistics.

The returns of the Registrar-General for a good many years prior to, and in part inclusive of, the period when sanatorium treatment was introduced into this country show a great improvement in the number of deaths from tuberculosis. That is a fact which is incontrovertible; but there are many divergent views of its explanation. The favourable reduction was world-wide. Some have explained it by improvement of the general hygienic conditions of life, better housing, better food, &c. It has, however, been pointed out that if this curve of improvement in the deaths from tuberculosis was but a part of a general fall in deaths from tuberculosis, that about the time of the Tudors the deaths of all humanity would be mainly from tuberculosis, and if the general average age of death was the same then as now, scarcely any one in the Tudor period would have lived beyond 50 years, or, if they did, would be in well-advanced consumption. It is more probable, as Professor Karl Pearson points out, that the deaths from tuberculosis followed curves of increasing and decreasing severity, much as we see in the curves of mortality from other infective diseases, the great difference being that in the case of tuberculosis, a very chronic malady, but few physicians can say they have seen the beginning and the end of a single wave in the mortality curves.

We must not claim that open-air methods have been proved to cure pulmonary tuberculosis or consumption. Our statistical methods are at fault. They will not convince any ordinary critical person. I will give you an example of what I mean, drawing my material from the published records of an institution which devotes itself to the cure of pulmonary tuberculosis. It points out that 11 cases entering the institution in 1905 had one lobe of the lungs affected with tuberculosis, as proved by the presence of tubercle bacilli in the sputum. The statistical report went on to show what happened to these cases in subsequent years. At the end of the following year eight cases were well and able to work. All that could be found out about the remaining three cases was that, at any rate, they were alive. Details are then given of the result of nquiry into the condition of these same 11 cases at he end of 1912. Not a single case was reported well and able to work," but as eight of the total umber could not be heard of at all, no deductions ould be made from this fact. Of the remaining hree, one was reported merely as "alive," two ere dead.

I submit to you that it would be very hard to xpect from that report any facts which supported he view that that institution was curing tuber-ulosis of the lungs. Curiously there was another et of 11 cases admitted into the same institution n the same year, 1905. In these cases three lobes f the lung were involved instead of one, and ubercle bacilli were present in the sputum. At he end of 1906 eight of them reported "well and ble to work," two of them reported merely 'alive"; one had died. In 1912 only one was 'well and able to work"; two were merely 'alive"; seven were dead; one was lost sight of. The perusal of these tables seems to point to the eduction that the earlier cases of frank tuber-ulosis of the lung are admitted into sanatoriums, ess of such number will be dead seven years afterwards than would be found dead amongst those who were admitted with more extensive disease.

When we ask ourselves how much support do reports like these give to the belief that sanatorium methods or sanatoriums cure tuberculosis of the lungs, the answer can only be, they give no support at all, and for the simple reason that we do not know what would happen, favourably or unfavourably, with cases not subjected to such treatment.

CONTRAST BETWEEN PULMONARY TUBERCULOSIS AND CONSUMPTION.

Listening to my remarks, some of you may be seriously alarmed about cases of tuberculosis placed under your care. You may be tempted to feel that I am painting a gloomy picture of them for the future; that they are bound to die, and that nothing will save them. I would beg of you to abandon such a view, and would point to the number of cases who, dying of some other disease, show that they have mastered tuberculosis of the lungs. This process of curing is probably going on in some individuals in this very lecture room. Many useful and long lives have been spent with tuberculosis held in leash, death occurring from some quite different cause. I am quite convinced that pulmonary tuberculosis is curable, just as any other form of tuberculosis is curable. I am not so sure about consumption, however, because the very nomenclature of the condition indicates signs and symptoms upon which few of us would like to express a cheery opinion. To my mind, there is an immense difference between pulmonary tuberculosis and consumption: they are not synonymous terms, and I am always glad to see that our notice board still retains the word "Hospital for Consumption" rather than making use of the term "pulmonary tuberculosis." I am quite convinced, and several of my friends here are also convinced, that the evidence is still wanting that sanatorium methods cure tuberculosis of the lungs or that they favourably influence the mixed infections which, added to the tuberculous infection, are responsible for what we call consumption.

Seeing how many cases of tuberculosis of the lungs, and even of consumption, live and work without ever going into a sanatorium, one is driven to the conclusion that it is the individual himself, or herself, who by reason of a resistance, which we do not yet understand, which we cannot measure, which we cannot increase or diminish, by any known system of medical treatment, who cures his, or her, tuberculosis.

DANGERS OF PROPHECY AS TO LENGTH OF LIFE.

I have another fact to bring before your notice—namely, that it is unsafe to prophesy how long cases of pulmonary tuberculosis, or of consumption, will live. On the one hand, we know that tuberculosis of the lungs in childhood, revealing evident signs of consolidation of the lungs, wasting, fever, loss of appetite, &c., will after a long last, pull through and apparently recover. On the other hand, how quickly some children seem to be carried off by the development of tuberculosis, following such an illness as whooping-cough or measles. The same warning is necessary in the case of adults. In every case of tuberculosis of the lungs, to "wait and see" must be our only programme. In general terms I think one may say the longer a case survives after any initial illness, or any initial symptom which is recognised to be of a tuberculous origin, the slower will be the further progress of the case, barring such accidents as hæmoptysis, pneumothorax, meningitis, &c. Whenever the tuberculous illness has only just declared itself and is revealed by a minimum of signs in the lungs, prognosis should not be attempted.

NEED FOR FURTHER EXPERIMENTAL EVIDENCE ON THE FACTORS INFLUENCING RESISTANCE.

A fact which is very important, and thoroughly well established, is that the instruction to notify cases of tuberculosis is disregarded wholesale. The patient's comfort, his right to liberty of action, his right to earn his living, and his right to "live with his own," to use an expression coined by a responsible Member of the Government quite recently, are felt by our profession to be paramount, and the behests of the Insurance Act are ignored, and they should be ignored, I think, until the Government is prepared, on finding that a certain individual is notified as a case of pulmonary tuberculosis, to keep him and those dependent upon his good health, as long as he has ill-health, and if he never can be restored to working capacity, until he dies.

Some of you have come from outlying States of the Empire, and you are carrying back impressions you have picked up in this country, especially with regard to the management we mete out to our cases of pulmonary tuberculosis. One of you has informed me that in his practice in a certain well-known State, in which he sees about 4000 patients a year, he has, on an average, only one suffering from tuberculosis of the lungs. I am familiar with the country of which he speaks; I know of its warmth and dryness, and judging from what I have seen of the homes of the rich and poor in London, and of the sort of life they have to lead from November to March of each year, I am quite convinced that the time has come for the *trial* of some other method for dealing with tuberculosis of the lungs. As you can guess from the remarks that I have uttered in this lecture, I am almost more alarmed by the mixed infection of the lungs than by the tuberculosis of the lungs which precedes it, because I feel that lung destruction—that is, consumption—is due to the mixed infection. We are already hearing favourable results of village settlements for those suffering from tuberculosis of the lungs in this country. I wish very much that it were possible to transplant the experiment to the dry, warm country above referred to, to see whether the absence of catarrhal infection of the lungs would not yield infinitely better results than the same methods carried out in this country. You observe I want a proper trial, with controls. We ought not to assume that *prima facie* such a plan would cure tuberculosis of the lungs or consumption; that was the way sanatorium treatment in this country was introduced. One experience of that kind should be quite enough. It is a certain fact to me that the scheme of curing tuberculosis of the lungs by sanatoriums in this country still remains to be proved capable of fulfilling its task. The large number of so-called suitable cases known to me who have gone through sanatorium treatment, and have not been cured, and have even got worse while undergoing the cure, considered with similar cases in which sanatorium methods seem to have effected a cure, make me wonder whether the cures, and the failures to cure when they have happened, were not, after all, dependent upon the success or failure of some factor other than the sanatorium treatment. I believe that other factor is most conveniently to be spoken of as the individual's resistance. All the members of a civilised community have been infected with the tubercle bacillus in childhood. Then why do they not all succumb to the infection? The answer must be, because they have resistance, which for all we know may be a constant quantity, may be of a low order, or high order, or it may be of varying quantity, changing from a high to a low order, and vice versa: it may become completely exhausted in a few years, or it may maintain its high value throughout life. I fully admit that whether a patient succumbs or not may be due to an increased or decreased virulence of the infecting tubercle bacilli, and may even be due to the fact that the infection is massive or only small in amount. It is not possible to influence the virulence of the infecting bacilli. It is reasonable to try to reduce the amount of infection each one suffers; but only so long as we do not impose hardships upon the individual affected. Can we influence the resistance of the body to -tuberculosis? We have done this already with regard to typhoid fever, and catarrhal infections of the respiratory tract by the use of vaccines. It is reasonable to think (1) that by the use of tuberculin very early in life increased resistance to subsequent tuberculous infection could be given to the child; (2) if an individual has already shown evidence of tuberculosis of the lungs, then vaccination against catarrhal infection should prevent what we call consumption. It seems to me that these are the two great possibilities for the future; but they should be *proved first*, just as I have hinted above we must experiment first before we say that removal to a warm, dry climate is also capable of reducing consumption. Do we know of anything which lowers the resistance of the individual to infection by the tubercle bacillus? We have strong evidence for believing that town life, indoor occupations, bad feeding, want of sunlight, &c., are all capable of leading to the development of tuberculosis. Such matters can be influenced, but we should be careful lest, for example, in securing plenty of fresh air, we do not pass from Scylla to Charybdis, for cold damp air in this country, at any rate, especially in the winter, has to be taken with large and sudden doses of hot, dry atmospheres, which leads to catarrh. Clinical study points clearly to the view that the lung destruction we call consumption may be due to the mixed infections which characterise bronchial catarrh. We can influence this agency, and I think it is of first importance that the experiment should be made. We must then leave to each individual the task of fighting the tubercle bacillus by his own resistance, because we have, so far, not shown experimentally that the resistance to the tubercle bacillus can be usefully increased by the use of tuberculin. I know a great question has been raised—namely, Is the resistance to tuberculosis diminished at all by the presence of the organisms of mixed infection? So far as I know, this has not been experimentally proved, and until that is done we can make no practical use of the theory one way or the other. I think it is proven that given the tubercle bacillus in the lung a certain amount of tissue is rendered less viable, owing to the direct effect of the tubercle bacillus. Such less viable, or even dead tissue, provides a suitable soil for saprophytic organisms, and possibly for pyogenic organisms. These latter organisms interfere with the ordinary power of the tubercle bacillus to produce fibrosis, and by the process of abscess formation lead to what we call consumption.

CARBON-MONOXIDE POISONING IN WARFARE.

By W. J. RUTHERFURD, *M.C.*, M.D., CH.B. GLASG.,
LATE TEMPORARY CAPTAIN, R.A.M.C.

IN addition to poisoning by the various "drift gases" and "shell-gas" fluids made use of by the enemy, there is another very important type of gas-poisoning met with in warfare.[1] This is poisoning by carbon monoxide, "mine-gas poisoning" as it is called, to distinguish it from the drift-gas poisonings; and it is usually met with among men of the engineer units engaged in the mining and countermining that of necessity accompany stationary warfare, and have done so at least since the days of Herodotus and Josephus.

The carbon monoxide, which has been described by Brouardel as holding first place amongst the toxic gases,[2] and is the toxic agent in these cases, is produced during the explosion of the charges in the mines, and is evolved in such quantity that in the case of a mine exploded in the month of September, 1916, the gas, issuing from the ground broken by the explosion, and taking fire, burned with a flame visible at a distance of a mile, and had not entirely ceased to burn at a quarter past four in the morning, five and three-quarter hours after the mine had gone up. Where the mine is more deeply placed, or where a smaller charge has been used, so that the surface of the ground has not been broken, the gas is either forced into the underground system of mine galleries or gradually percolates into the galleries through cracks and porosities in the ground, and in these circumstances the miners become subject to this form of gas poisoning, the severity of which may range from mere headache and debility to coma and death. Both among the Germans and among our own men many casualties have occurred in this way.

In some cases the reflux of carbon monoxide after an explosion has come up the mine-shaft and caused gas poisoning in persons in the trench in the near vicinity to the mine entrance. There is a persistent rumour, too, that during the first winter of trench warfare (and certainly such cases occurred during every subsequent winter of the war) there were cases of carbon-monoxide poisoning, some ending fatally, apart from mining work, due to braziers of burning fuel having been taken into dug-outs during the night, the dug-outs having been sheltered against the bitterness of the winter cold by a heavy blanket hung across the entrance, and effectually preventing the escape of the products of combustion. Carbon monoxide, as is well known, has the effects of a cumulative poison, even in relatively small quantities, although it is not possible to go as far as Claude Bernard, and say that every breath drawn in an atmosphere containing this gas kills a certain number of blood corpuscles, until they are all dead and respiratory exchange is no longer possible. The vast majority of cases of carbon-monoxide poisoning among soldiers, however, is true mine-gas poisoning in the literal sense, and occurs underground, the victims being almost exclusively drawn from those working in tunnelling and other duties connected with underground warfare. The case here quoted is an example of gas poisoning, where the gas had welled up the shaft of the mine, although the patient was not actually in the open air at the time he was gassed.

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[1] In Penhallow's "Military Surgery" (1916) the only forms of gas poisoning mentioned are shell gas and drift gas.

[2] Les Asphyxies par les Gaz, les Vapeurs et les Anesthésiques 1896, p. 5.

J. M., aged 22 years. Eight days ago was gassed with carbon monoxide while he was in the sloping gallery leading to the head of the shaft at the time a small mine was exploded. The gas welled up the shaft, reaching the place where he was waiting. He became dizzy and weak, and came out into the open air; he has continued to feel "fair beat" ever since, with slight looseness of the bowels from time to time.

The problems of gas poisoning in mining operations in the chalk are quite different from those encountered in the working in a clay stratum, owing to the presence of fissures in the former and its porosity to gas, which may be retained for comparatively long periods and afterwards forced out into the workings by changes in barometric pressure or by a rising water-level in the chalk.

As has just been stated, the carbon monoxide, which is the toxic agent in these cases, is engendered by the explosives in use in the mining operations, and is liberated in relatively large amounts.

Poisonous Gas-production after the Use of Various Explosives.

The various explosive substances (with certain exceptions, such as the acetylene compounds) contain within themselves a considerable amount of oxygen, which is, however, generally insufficient for the complete oxidation of all the constituent oxidisable elements. In consequence, not only may there be the formation of carbon monoxide, but hydrogen, marsh gas, and certain other oxidisable substances may be liberated as the result of the detonation of various explosives. The methane is said to result from interaction of the hydrogen with the oxides of carbon as the hot gases cool down and not to be formed at the time of the explosion. Nitroglycerine is an example of the explosives which are completely oxidised on detonation, and this substance exists to the extent of 75 per cent. in dynamite and 30 per cent. in cordite, besides being present in smaller proportions in many of the blasting gelatins. Its detonation may be expressed by the following equation—

$$4C_3H_5(NO_3)_3 = 12CO_2 + 10H_2O + 6N_2 + O_2,$$

although it is capable in the presence of a suitable absorbent, such as exists in dynamite, of burning slowly in air, from which it absorbs still further oxygen with the formation of the higher oxides of nitrogen. The gases evolved from the ordinary detonation of nitroglycerine are sufficiently copious to give from 1 kg. of the explosive 713 litres of gas at N.T.P. when the water vapour has been condensed out. These gases, however, contain no carbon monoxide, although the oxides of nitrogen resulting from the imperfect detonation of a charge of dynamite are extremely pernicious in their effects if they happen to be inhaled.

Carbon monoxide is produced as the result of the use of a large series of explosives, such as gunpowder (whether in the form of rifle-powder, "cocoa powder," or blasting powder), gun-cotton (either by itself, or as cordite, of which it forms 65 per cent.; smokeless powder, which is 98 per cent. gun-cotton with 1 per cent. of acetone and 1 per cent. of moisture, etc.; or the blasting gelatins), and ammonal, the latter of which is used extensively and in enormous quantities, charges being laid and exploded such as had never been heard of or even imagined in times of peace. The fulminate in the detonators also liberates CO, but owing to the relatively small amount of this substance that is necessary, this factor may be ignored. The equation representing the decomposition of the fulminate in the detonators is as follows:—

$$HgC_2N_2O_2 = Hg + 2CO + N_2,$$

66 per cent. by volume of the small amount of gas liberated consisting of carbon monoxide; not, however, at the instant of detonation, as the molecular mercury liberated occurs momentarily in gaseous form also. The greyish fume given off on explosion of mercuric fulminate consists of finely divided metallic globules condensing out from the rapidly cooling gas.

The equation representing the explosion of a charge of gunpowder may be given as under:—

$$21C + 7S + 16KNO_3 = 13CO_2 + 3CO + 8N_2 + 5K_2CO_3 + K_2SO_4 + 2K_2S_3,$$

12½ per cent. of the resultant gases liberated consisting of this lethal substance in question. As the composition of gunpowder is variable, the quantity of gases evolved and their relative proportions varies with the type of powder that has been used. For instance, the so-called cocoa powder contains 79 per cent. of nitrate of potash, 2 per cent. of sulphur, 18 per cent. of charcoal, and 1 per cent. of moisture; black rifle-powder contains 75 per cent. KNO_3, 10 per cent. sulphur, and 15 per cent. carbon; while blasting powder contains 67 per cent. of nitre, 19 per cent. of carbon, and 14 per cent. of sulphur. The volume of gases evolved during the explosion of these three explosive mixtures, when reduced to N.T.P., is as follows, in each case 1 kg. of the explosive being used: in the case of cocoa powder 200 litres, from the black rifle-powder 275 litres, and in the case of blasting powder 360 litres. From certain French powders from 263 to 278 litres per kg. are evolved on explosion.

The detonative decomposition of gun-cotton, which may be considered as typical of the various compound explosives of which it forms part, may be expressed by this equation:—

$$C_{12}H_{14}O_4(NO_3)_6 = 7CO_2 + 5CO + 4H_2 + 3H_2O + 3N_2.$$

It will be seen from the above that in this case the percentage composition of the gaseous products of decomposition will stand for CO at about 22¾ while the gases are hot and the water present is in the form of fully vapourised steam, and about 26⅓, or well over one-quarter of the whole, when the water vapour has condensed out. In this latter case no less than 859 litres of gas containing this high proportion of carbon monoxide are produced, measuring—at N.T.P., of course—from 1 kg. of the explosive. It is said that where, in certain special circumstances, a charge of gun-cotton burns instead of exploding, as much as 40 per cent. of carbon monoxide may be present in the fumes evolved.

Formation of "Pockets."

It is the carbon monoxide thus produced, and produced in these high proportions and enormous quantities,[3] which is absorbed into the chalk and forced into the fissures, either existing naturally or resulting from the explosion of the charges that have been laid, that is being constantly encountered by those engaged in the work of the various tunnelling companies, and which frequently results in the occurrence of cases of gas poisoning of this specialised nature. Owing to the gas being contained in cracks among the chalk it is found in what are described by the miners as "pockets," and owing to this fact in many instances the gas is liberated too suddenly for the men to notice any alteration in the behaviour of the test animals (mice or canaries) that they have with them before they are themselves beginning to be affected. Usually the amount of gas set free by the disturbance of one of these "pockets" is not too great to prevent a realisation of their symptoms, in which case they usually seek the fresh air at once.

An official document affirms that "the formation of large quantities of combustible gases—CO, H, and CH_4—is generally indicative of poor detonation." Their presence depends, however, on the essential nature of the explosive used, though in a certain sense the occurrence of these gases in the galleries may depend on imperfect detonation. Where a well-detonated charge has been expected to break the surface a vent will, of course, be formed, permitting escape into the atmosphere of the gaseous products of the explosion. Where, on the other hand, the charge has failed to detonate properly (whether from an insufficient number or distribution of the detonators in a large charge, from deterioration of the explosive from damp or other cause, from imperfect tamping or the operation of other factors), the surface may not be broken, and the gases formed are forced under pressure into the surrounding broken-up ground from which they make their way sooner or later into neighbouring galleries, the leakage of gas into the workings sometimes continuing over a period of many days and being aided, as has been noted already, by factors such as a falling barometer and a rise in the level of the subsoil water. In an impervious stratum such as clay, which occurs largely along the northern sector of the Flanders front, the difficulties met with owing to the late presence of gas in the workings after a blow (as the explosion of a small mine or camouflet is often termed) are very slight compared with those occurring where the galleries run through chalk or other substances of a porous or permeable nature.

In the two examples here described the gas must have existed in some such "pocket," but was liberated in such large quantity that the men working at the face were rendered comatose with great suddenness, and when an officer, Captain P. T. Hough, M.C., R.E., had his attention directed to the occurrence he heard, he tells me, the stertorous breathing of the unconscious men as he was coming along the gallery, and before he had actually come in sight of either of them.

Captain Hough's report.—X was originally an incline 90 ft. long dipping 1 in 3, at the end of which was a 60° shaft going to a total depth of 45 ft. From this inclines were drawn in the form of a V. On April 26th, 1916, the enemy blew a large charge about 120 ft. from the shaft. On June 1st the left branch was blown with a charge of 20,000 lb. of explosive,[4] being then 110 ft. from the shaft and about 75 ft. from the surface. The shaft, although tamped, was so badly damaged as to make too long a process recovering it. Two inclines, 1 in 1, was accordingly started from the old shaft-head. Men frequently complained of gas, and two or three mice and canaries were lost. Work was continued in the left branch; several men were gassed, one or two having to go to hospital, during the days following. Most of these men complained of feeling very sick and even vomiting before a headache developed. In most case a sleep in the fresh air and rest put the men all right.

On June 30th I went down to listen in the left branch. The facemen complained of having felt sick from effects of the gas. I listened in this branch for about ten minutes, and then went into the right branch, travelling about 90 feet. Five minutes later I was called for from the junction, and on going into the left face I found the two facemen unconscious, with every limb twitching violently and the breathing stertorous. I heard the breathing even before seeing the men. With some difficulty we got them to the junction whilst the stretcher was being brought down. One of the two men was sick whilst being taken out into the trench and still unconscious.

Those of us who had taken the men out of the mine were very exhausted and strongly inclined to vomit on reaching the fresh air. On reaching the trench oxygen was administered until breathing became normal. The men were then carried down to the dressing station, where the other man was sick, though still unconscious. It was noticeable that their faces were quite a deep pink in colour.

The men were then taken to a well-ventilated dug-out and put in charge of stretcher-bearers. One of them woke up during the night to urinate, but the other slept on until well into the following afternoon. They were then sent to hospital.

7/7/16.

The story given by the two men themselves, however, when seen three days after they had been gassed, is to the effect that while at the mine face together they began to feel dizzy and came out into the fresh air. After about half an hour, one of them still feeling dizzy, they returned to the working face, and after working there for about 20 minutes became unconscious and had to be carried out. This occurred, so far as I can gather, about 7 o'clock in the evening; the one says that he remained unconscious (or rather sleeping) till 1 o'clock the next afternoon, while the other maintains that he was unconscious for 20 hours. Three days after the gassing they both complained of a feeling of debility, with headache and slight pains across the front of the chest. Both were constipated; one had vomited as late as two days after having been gassed; in neither was there any elevation of temperature, one of the two having his temperature subnormal, the thermometer registering 97·2° F.

Thirteen days after the cases of gas poisoning recorded above there was a further series of cases occurring in the same situation. On July 13th the ventilating pump was stopped for a short time in order to enable listening to be carried out without nterruption by extraneous sounds. Within a short ime two officers and a private were gassed, none of the cases being serious. Both the officers complained of headache, palpitation, and temporary debility, but were soon all right, and were able to carry on with their duties. From the private a more detailed story was obtained. He says that he was gassed at his place "in the face" while engaged in listening. He felt pains in the head and ached all over, and so came out into the fresh air. On coming out he fell, and lay where he was for about five minutes; he then got up and walked for about 30 yards, when he felt so exhausted and had such palpitation that he had to sit down. The next time he got up he walked a little farther, perhaps 50 yards, before he had to sit down again and rest. Then he proceeded farther and got a drink of hot tea, which he vomited in about half an hour. The next morning he was aching all over and could not get up, so he spent the day in his billet. The following day he felt weak and had slight headache, with slight looseness of the bowels; his temperature was 97°.

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[3] For comparison it may be mentioned that the gases from a blast-furnace contain from 27 to 36 per cent. of carbon monoxide.

[4] The enemy is known to use charges of from 4000 to 15,000 kilogrammes; their explosives being donarite, westfalit, trinitroanisol, and glukauf, as has been proved by taking them over along with a district. We generally, but not invariably, used ammonal

Illustrative Cases.

The following are two striking examples of the way in which the gas collects in cracks in the chalk, from which later on it works its way out and causes symptoms among those working in the vicinity. The case in which the man was struck down at once by the gas issuing from a crack that he had uncovered is particularly interesting, as in these foudroyant cases of gas poisoning the test animals taken down into the galleries naturally fail to give preliminary warning of the presence of the gas, and for this reason their value as indicative of its presence has sometimes been discounted.

M. L., aged 43 years, was gassed two days ago while taking out the tamping from a mine that had been blown four days previously. While removing the tamping he came on a crack in the floor of the gallery, "and the gas just spewed out," rendering him immediately unconscious—foudroyé, to use Brouardel's description. He remembers nothing of what happened, being carried out comatose, and coming to during a two hours' rest in a dug-out. He was sent to hospital, returning from there yesterday[5]; is weak; sweats profusely and has no appetite.

J. K., aged 22 years, was engaged yesterday in driving a gallery through the chalk near an area that had been disturbed by the blowing of a camouflet a week before. There were two or three long cracks in the chalk a quarter of an inch wide and running obliquely and vertically along the entire length of the face, the result of the explosion. After working for two hours he began to have a slight headache, and at the end of the shift felt very feeble and had weakness of his legs. On coming into the open air he felt worse and sat down in the trench for a quarter of an hour before proceeding farther. On getting to the dug-out he could not eat, but had a drink of tea. After lying down for six hours he felt no better and was sent back to billets. This morning feels weak on the legs, has slight headache, and complains of tightness in the chest. Is pale and appetite is poor; otherwise his condition seems very fair. Temperature 98·4° F. The officer who sent this man out of the trenches believes that he is malingering.

Carbon-monoxide Poisoning from the Use of Blasting Charges in Military Mining.

The following is a report on carbon-monoxide poisoning as caused by the use of blasting charges on the working face during the military operations carried out by tunnelling companies. While driving a tunnel footage may be obtained in one of two ways, either by straightforward pick and shovel work, or by breaking up the material at the face by means of blasting charges placed in borings and suitably tamped in. The latter method is specially useful where a gallery is being driven through a hard stratum, and where working in chalk it is found that this becomes progressively harder and more compact in the deeper levels.

As has been shown, a wide range of explosive substances, from old-fashioned gunpowder, on the one hand, to the modern high-explosive compounds on the other, generate carbon monoxide on detonation, owing to their containing insufficient endogenous oxygen to oxidise completely all their carbon atoms during the sudden regrouping of elements that occurs when the explosion takes place. The explosion results in the liberation of large volumes of hot gas (varying in quantity for each kilogramme of explosive used from 200 litres at normal temperature and pressure in the case of some varieties of gunpowder, to 859 litres in the case of gun-cotton), containing a proportion of carbon monoxide that varies between very wide limits, but which may in some cases be as much as 40 per cent.; in quantities, in fact, which are as high as, or even higher than, the amount present in the flaming gusts of gas evolved from the top of a blast furnace. Naturally the presence of this gas in mine galleries after an explosion can give rise to serious trouble, which, however, may be largely guarded against by following the precautions that are laid down, and by resource to various types of safety apparatus when work requires to be pushed on in a poisonous atmosphere.

Not only is this toxic gas produced by the explosion of a mine, whether one of our own or one fired by the enemy, but carbon monoxide is present in the fumes given off by many of the blasting charges at the working face of the mine gallery. An exception must be made in the case of dynamite where this has detonated properly, as theoretically this substance, owing to the high oxygen content of the nitroglycerine it contains, should completely oxidise all the carbon present into CO_2, and have enough oxygen left over either to be liberated as such or to form, by combination with the nitrogen present, a certain quantity of the higher oxides of nitrogen; these oxides of nitrogen, although highly toxic, are to a certain extent brought down by moisture, and are at once fixed and rendered innocuous in contact with any of the carbonates of the alkaline earths, such as are abundantly present where work is being carried out in the chalk. With blastine, gelignite, and cheddite, all of which are used in working on the face, it would appear that a certain amount of carbon monoxide is formed, which in a small gallery may, even in the presence of good ventilation, give rise in susceptible persons to minor symptoms of poisoning, sufficient, perhaps, to interfere with their working for a longer or shorter period. Although cheddite contains chlorate of potash in addition to its other constituents (nitrotoluene and a resinous body), its use at times gives rise to symptoms similar to those met with where other explosives have been employed, and which are unquestionably the result of the presence of carbon monoxide in the fumes. Two sticks of cheddite, weighing together only 100 g., detonated on the working face, have been known to evolve sufficient carbon monoxide to affect a man engaged afterwards in clearing away the broken-down chalk loosened by the explosion. There is no question, however, that some men are more easily affected by the toxic fumes than others, in the same way that some men, more than others, have a tendency to exaggerate their symptoms.

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[5] These dates refer to notes taken at the time.

The Effect of Certain Blasting Charges in C.O. Poisoning.

The following examples are illustrations of the effect of such blasting charges in giving rise to "mine-gas poisoning" from carbon monoxide:—

CASE 1.—Sapper J. M., aged 33 years. Two days ago was gassed with CO on going into mine gallery two hours after a blasting charge of 1½ cartridges of cheddite had been fired in a borehole. He went up to the face and did a little work among the broken chalk, when he became groggy at the knees and his head began to spin. The gallery was properly ventilated at the time. He came out of the mine, but when he got to the bottom of the shaft he needed assistance. On getting into fresh air he collapsed and does not well remember what happened. In about an hour he was all right again except for a headache, but rested for the remainder of the shift. Now feels weak about the legs and has a very poor appetite; is drowsy and tired, and has slept more heavily at nights since being "gassed." Is constipated. Temp. 98° F.

This case is a somewhat remarkable one owing to the length of time that elapsed between the blasting of the charge and the man being gassed. The reason is probably that there was a quantity of the gas forced into and among the broken chalk, and that when he began to stir it up with his shovel enough carbon monoxide was disengaged to give rise to symptoms. He was probably stooping down over his work and would inhale the fumes directly into his lungs.

CASE 2.—Sapper I. B., aged 24 years. (This man is naturally pale and nervous, and has an irritating nervous tic which consists in constantly smacking his lips loudly when spoken to and after giving any reply.) Two days ago was working at the face in the mine ten minutes (or so he says) after two blasting charges of cheddite had been exploded to break up the material at the face. The smoke was "working out very steady" as he worked. After half an hour at this work the shift finished and he came out. During this time his head had been spinning, but he had not felt badly any other way. On getting into the fresh air he fainted suddenly. On coming to he walked slowly down to the aid-post in the trenches, but when half way there had to stop for five or six minutes owing to a fresh accession of faintness. Now complains of pains in head; tongue and hands are tremulous; temp. 99° F. The following day his temperature was 98·8°, and he was otherwise much about the same.

CASE 3.—Sapper G. L., aged 24 years. Has a septic mouth, with diffuse toxic pains and headaches. Regardless of true ætiology, he attributes his discomforts to "eating the smoke" (i.e., to use another of his phrases, "swallowing a mouthful of the smoke") of the cheddite charges used for blasting in the mines, and says—in this case probably correctly—that he always gets headaches when he has to work where a charge of cheddite has been exploded recently.

CASE 4.—Pte F. S. (attached infantryman), aged 22 years. On the previous day was down a mine when a blasting charge was fired at the working face about 50 yards away. About a quarter of an hour afterwards he resumed his work of pushing a trolley loaded with bags of broken chalk from this face to the bottom of the shaft; while employed at this he became short of breath and began to feel weak; and when, 10 minutes after he had restarted working, white smoke from a charge blown in another gallery reached him, he felt so weak that he came out of the mine of his own accord. While climbing the ladder in the shaft he felt as though he might collapse and fall off at any moment, and on reaching the open air he had to lie down for 10 minutes. At present he is very confused and mixes up his story, so that it is with the greatest difficulty that any sense is got out of him; to get this story took over half an hour; he says that he has taken no food since being gassed, not owing to any feeling of sickness, but to complete loss of appetite. Tongue dry and denuded; bowels regular; temp. 98·2° F.

Carbon-Monoxide Poisoning in Civil Mining.

In mining operations in civil life carbon-monoxide poisoning is not unknown as the result of the use of blasting charges on a working face, but in these cases the quantity of explosive is very much greater than in the charge dealt with here. For instance, in the mines of Johannesburg a charge will consist of from 40 to 60 lb. of blasting gelatine distributed in 14 or 15 drill holes on the face and all detonated within a few seconds of one another by time fuse. The quantity of carbon monoxide evolved by the explosion of such a quantity of blasting gelatine may be considerable; but the quantity of deleterious gas generated from even a stick and a half or two sticks of explosive at the working face in one of the galleries in military mining is, as is pointed out here, quite sufficient to give rise to trouble.

The following are notes on the fumes of some explosives used in blasting on the working face in military mining operations, compiled for me by Lieutenant W. A. Ellison, R.E.

Blastine.—This gives an exceptionally dense fume of a white colour, and is very difficult to clear, even with a strong current of air. It is impossible to breathe long in these fumes, which cause intense headache.

Dynamite.—The bluish-white fumes from this are very heavy and remain low. With this explosive I find it is possible to breathe fairly well long before the gallery is clear. In this respect it is unlike "blastine." The effect of these fumes is to cause vomiting, but very little headache.

Gelignite.—This explosive does not give a very dense fume, and it is possible to get into a face quite soon after an explosion without any ill-effects. It clears itself fairly quickly even without a current of air. The fumes are white in colour.

Cheddite.—As regards fumes this explosive is the best. Many times after firing I have at once gone to the face and remained there without the slightest inconvenience. The yellowish fumes seem to clear themselves much quicker if gelignite has been used with the cheddite, but the fumes are much denser than when either explosive is used singly.

Note.—These papers were originally written in 1916, but permission to publish was withheld by the War Office as active warfare was then in progress.

RICKETS IN GERMANY:

A STUDY OF THE EFFECTS OF WAR ON CHILDREN.

BY PROFESSOR DR. ENGEL,
DIRECTOR OF CHILD WELFARE AT DORTMUND, WESTPHALIA.

AS food conditions began to get difficult in Germany medical men directed their attention at once to the effects which might be produced among the civilian population. It was to the nation's growing youth that thought especially turned, in the natural apprehension that there it might soonest lead to harm, and in consideration of the fact that the coming generation was the most precious possession of the State and must be kept in health, whatever happens.

For a long time no special effects on children were to be recognised. The weight at birth of infants remained, in spite of the hypo-nutrition of their mothers, practically constant. Only in the very latest period of the war did weakly children of under-weight begin to appear in greater number. The average of weight of new-born children, as observed in the lying-in hospitals, was then reduced. The general health of infants was good, the mortality-rate low. The number of births had fallen sharply, a circumstance which always reacts favourably on infant mortality. In addition to this, chiefly in consequence of the shortage of cow's milk, and encouraged by a special grant from the State, breast-feeding became more prevalent. The mortality-rate of infants was permanently reduced.

The position of children between two and five years of age, however, became more and more unfavourable. In spite of the fact that their number also fell and therefore, other things being equal, their prospect of life became better, the mortality-rate did not fall, but from 1915 on practically reached the infantile mortality-rate, and even exceeded it, of the year 1918. In normal times the mortality of the two-to-fives was not half as great as that of infants.

Rickets as a Cause of Death.

When the statistics are examined, it is seen that the increased number of deaths are not referred to the group of diseases which claims so many victims among children—namely, the infectious complaints.

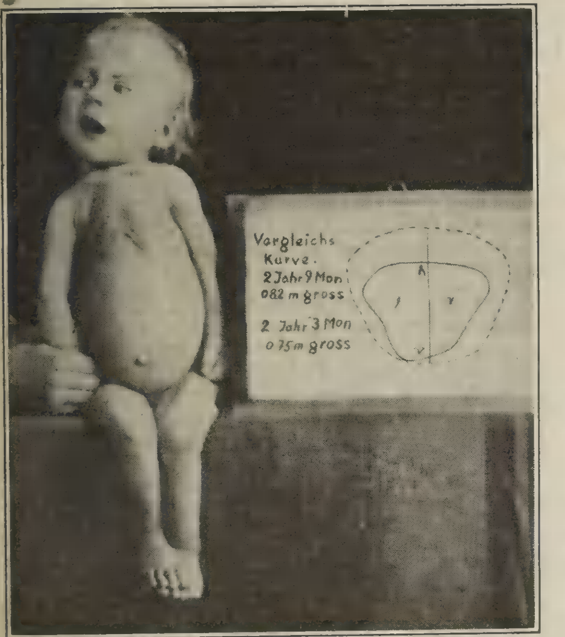


FIG. 1.—Photograph of a child, 2 years and 3 months old, with rachitic deformity of the chest. To the perimetric tracing is added for comparison that of a normal child of 2 years and 9 months.

There is to be noticed instead an increased number of entries of death attributed to inflammation of the lungs. Here, as is so often the case in death statistics, the term used does not quite meet the case, a fact which will immediately appear.

The experience at the clinic directs our attention to another chain of circumstances. From 1917 on the increasing occurrence of rickets became more evident. In some degree at the present time almost all children up to the most well-to-do are affected. As their social position becomes less favourable rickets becomes general, and assumes severer forms. These cases it is which are our chief concern. On the one hand, there are children who are in the highest degree backward in growth, and yet do not show coarse bony change apart from massive thickening of the epiphyses. These children are unusually small, but on the whole well proportioned. Their musculature is scanty and flabby. From the shapelessness of legs, and especially of the calves, it may be gathered that the children have never made any use of their lower limbs. The spinal column also frequently lacks the support of the musculature, so that the children fall together more or less and become highly kyphotic.

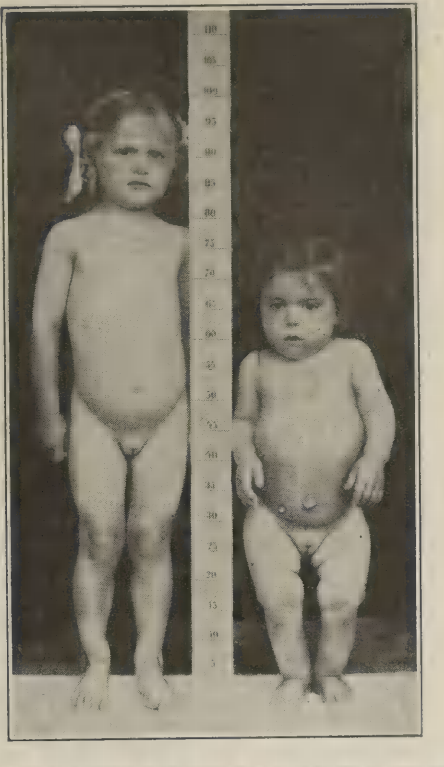


FIG. 2.—On the right, a rachitic dwarf, 4 years of age, after three months' treatment in hospital. On the left, a normal child of the same age. The height is given in centimetres.

In other cases, softening of the bones is more in evidence, in the limbs but more especially in the chest. All grades of deformity occur up to the most marked bending and bowing of the legs, of the spinal column, of the chest, and of the arms. But often the thorax is so badly affected that all other changes sink into the background. We have then children before us who are far too small for their age and in whom the thorax is seriously deformed. Under the influence of the negative pressure arising during inspiration in the thorax, the chest is crushed in from the sides and its cubic content much reduced. The lungs can no longer expand, with the result that the children are permanently dyspnœic. Even should no further complications arise, death may ensue with symptoms of acute air-hunger. Should complications be added to the existing respiratory insufficiency, be it only a slight bronchitis or a febrile illness, such as measles, death is the more likely to supervene. The picture of air-hunger is then so severe that as a rule the medical attendant assumes the presence of "inflammation of the lung" when it is only a question of pure respiratory insufficiency in consequence of a yielding thorax. At the autopsy we have often been able to satisfy ourselves of this fact. The ribs are weak and the chest falls widely open when the incision is made on the post-mortem table. In the pleural cavities are then seen the flabby, badly-ventilated, but not inflamed lungs. It is this increase of deaths of rachitic children in consequence of respiratory insufficiency that causes the increase of recorded deaths from "inflammation of the lung," and which makes it probable that the high mortality of little children is really to be ascribed to rickets.

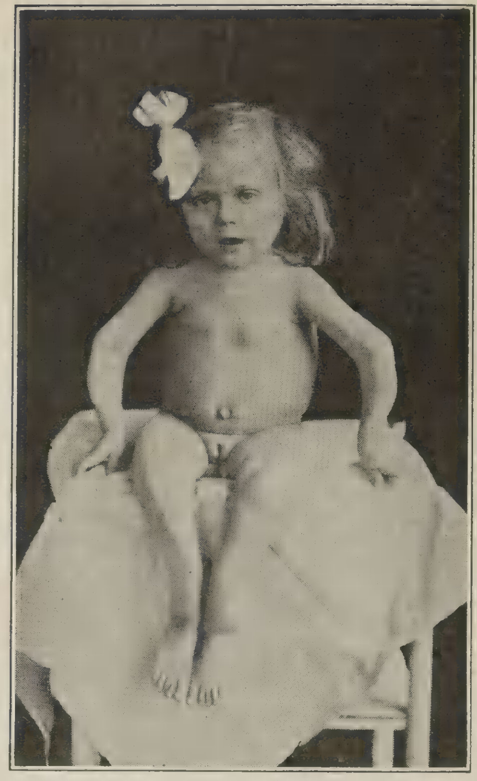


FIG. 3.—A girl, 6¾ years old, and unable to walk. This child took more than two months to learn the use of her legs.

Rickets as a Cause of Crippling.

Rickets as a cause of death is bad enough, but still more perturbing is the high number of cripples with which we have to reckon. First of all, the prodigious number of dwarfs. Observations, now going back a year or more, show that the growth tendency of rachitic dwarfs seems to be slight even after recovery from the condition which gave rise to the dwarfing. No final judgment can yet be passed; nevertheless it already seems probable that complete reparation will not occur. These dwarfs will in the majority of cases remain of lessened citizen value. Similarly with the numerous children in whom severe deformity of the skeleton has occurred. Those also, who in addition are frequently dwarfed, will not become full-valued members of society. On the contrary, it is to be feared that a not inconsiderable proportion of the young people of to-day will later become a charge upon the State.

When an attempt is made to form an exact position of the extent of those affected the ability to walk affords a great criterion. In a town such as Dortmund, in which the inhabitants consist chiefly of manual workers, and which has a larg youthful population, the number of small childre amounts to some 10 per cent. of the population, o say 30,000. From the practice of the clinics an consultations, it is estimated that more tha 10 per cent. of these children cannot walk. Number of them are three, four, or five years old, some eve older. Fig. 3 shows a 7 year old child unabl to walk.

As to the cause of the prevalence of rickets n doubt can arise. The food-supply, insufficient i amount and faulty in composition, which was al there was to give to children during recent years the lack not only of fat and milk, but also of fres vegetables and milk, are without question to b blamed. Most crucial seems to have been the lac of fresh milk. To this conclusion above all point the fact that rickets is far more widespread tha before among the children of the well-to-do also Even in the worst times much could be had fo money, but not milk. However much we wer inclined earlier to shelter our rachitic patient from excessive ingestion of milk, yet we must now admit that too great a lack causes the disease Should doubt arise as to the effect of the relative starvation, it must vanish when we see how, unde the prolonged influence of these harmful conditions, bony disease occurs in increasing exten among the higher age-groups also.

Treatment has always shown itself of rea worth, when the children could be brought to clean and healthy manner of life with sufficien nourishment. Hospital treatment has, in consequence, shown good results, although existing institutions do not avail by far to accommodate the great number of those requiring it.

A CASE OF
SEVERE CEREBRAL TOXÆMIA,
FOLLOWING AN INTRAVENOUS INJECTION OF NOVARSENOBILLON.

BY R. J. G. PARNELL, M.R.C.S., L.R.C.P.,
SURGEON LIEUTENANT-COMMANDER, R.N.; SPECIALIST IN VENEREA DISEASES, ROYAL NAVAL HOSPITAL, HASLAR.

With a Note by

SHELDON F. DUDLEY, O.B.E., M.B., B.S. LOND.
SURGEON LIEUTENANT-COMMANDER, R.N.; MEDICAL OFFICER IN CHARGE OF LABORATORY, R.N. HOSPITAL, HASLAR.

AT a time when the treatment of syphilis by arsenical compounds is being conducted on an increasingly vast scale, the details of the following case should be of interest. The type of toxic reaction described is fortunately rare. It occurs almost always some few days after an intravenous injection and, as a rule, ends fatally.

The special points of interest are that the recognised methods of treatment were of no avail, and that immediate improvement, and eventually complete recovery, followed the two measures adopted, which were: (1) continuous inhalation of oxygen; (2) an intravenous injection of urotropine and caffeine.

The patient, a healthy young man, 19 years of age, was sent to Haslar on July 31st, 1919, on account of manifest signs of syphilis, discovered at an examination for draft. Examination in hospital showed a slight degree of general glandular enlargement, a macular syphilide on trunk and limbs, and erosions of anal mucosa. Wassermann positive; urine normal; nothing else abnormal detected. No previous history of fits. On August 2nd 0·45 g. of N.A.B. was given intravenously without reaction. Four days later 0·9 g. was administered, also intravenously. No reaction. On the night of August 8th (approximately 56 hours after the second injection) the patient vomited. Temperature, 103·8° F. Next morning he vomited again. At 7.30 A.M. on the 9th he was found in a fit, "foaming at the mouth." Details of this attack are not available, as he was not seen in it by a medical officer. He slept most of the day, the temperature rising from 99° in the morning to 103° in the evening.

Further events were as follows: August 10th, *9.10* A.M., severe epileptiform seizure (second), preceded by cyanosis and contortions of the face and contractions of the left arm. Patient bit his tongue in the fit. *9.20:* Typical post-epileptic state. Pulse 80. Temperature 99°. *10.10:* Macular (arsenical) rash on left forearm. *11.45:* Patient conscious, but dull and lethargic; answered questions after a long interval. Rash generalised and very irritable; patient scratching skin, especially of perineum. *12.50* P.M.: Another fit (third); duration of convulsions, two minutes. *1.20:* Semiconscious; incontinence of urine; face cyanosed; restless; signs of cerebral irritation. *1.23:* Another fit (fourth). Duration, 1 minute. *1.30:* Temp. 100·6°; left arm twitching; patient unconscious. *2:* Semiconscious. *3:* Apparently conscious; would not answer questions, open mouth, or swallow; pulse 76, volume full. *4.15:* Another fit (fifth), lasting one minute; incontinence of urine; temperature 100·6°. *6:* Temperature 102°, pulse 92. *9:* Signs of cerebral irritation. August 11th, *4* A.M.: Another fit (sixth); right side of body more convulsed than left. *4.30:* Generalised muscular twitchings. *5.10:* Restless and irritable. *9:* Incontinence of urine and fæces; pulse 84; temperature 102·4°; unconscious; less irritable. *9.35:* Violent fit (seventh); deep cyanosis; pulse very feeble, but soon improved. *10:* Unconscious; pulse 80.

Treatment Adopted.

The following recognised methods of treatment had been tried without any signs of improvement: Adrenalin in 15-minim doses, calomel gr. i. hourly, chloral and bromide (by the mouth and rectum), venesection, and lumbar puncture (18 c.cm. of fluid withdrawn). Shortly after the seventh fit, at the suggestion of Surgeon-Lieutenant-Commander Dudley, continuous oxygen was administered, and an intravenous injection of urotropine 1·5 g. and caffeine 0·2 g. in 15 c.cm. of sterile distilled water. The course of events thereafter was as follows:—

12.30 P.M.: Sudden extreme cyanosis while patient was lying placid and unconscious; pulse 60; cyanosis soon passed off, without any fit developing. (N.B.—Each fit was preceded by cyanosis and distortion of the face. In the seventh fit the patient became black, and this, in association with a temporarily imperceptible pulse, gave rise to the fear that a fatal issue was imminent.)

From this moment onward improvement was steady and rapid.

3 P.M.: Colour normal; signs of returning consciousness. *5:* Patient opened his eyes and stated that he was "all right." During the night he slept quietly. Incontinence of urine at *1* A.M. on August 12th. At *9* A.M. his condition was normal, and but for incontinence of fæces on the night of the 13th, and relative amnesia for 14 days, his recovery was uneventful.

Examinations of the Blood, Urine, and Cerebro-spinal fluid.

Blood (August 10th).—Red cells, 6,650,000 per c.mm.; white cells, 19,200 per c.mm.; hæmoglobin, 80 per cent.; colour index, 0·6. No alteration in shape, size, or staining of red cells; two myelocytes seen. Differential leucocyte count: 68·3 per cent. polymorphonuclear cells; 26·7 per cent. small mononuclear cells; 5 per cent. large mononuclear cells.

Arneth count: 1, 2, 3, 4, 5.
66 25 8 1 0
91 9
Normal (40). Normal (60).

Arneth count indicates a very marked toxæmia.

On August 12th, the leucocytes numbered 10,300 per c.mm. Differential count: 58·5 per cent. polymorphonuclear cells; 34·0 per cent. small mononuclear cells; 3·0 per cent. large mononuclear cells; 4·0 per cent. eosinophiles; 0·5 per cent. basophiles.

Arneth count: 1, 2, 3, 4, 5.
29 36 27 8 0
65 35

The whole count suggests that the toxæmia is less acute.

August 14th: Leucocytes, 6300 per c.mm.; no important changes in differential count.

Arneth count: 1, 2, 3, 4, 5.
26 39 29 6 0
65 35

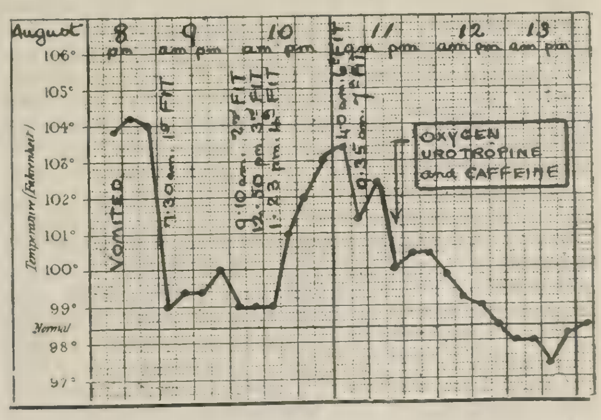
Urine (August 11th).—Acid, specific gravity 1015; trace of albumin; no sugar; urea 2 per cent.; large deposit of uric acid and amorphous urates. (It has already been noted that the urine, prior to treatment, contained no abnormality.)

Cerebro-spinal fluid.—18 c.cm. of clear colourless fluid. A mere trace of blood settled on standing. Normal amount of reducing substance and globulin. Cells: 5 lymphocytes and 110 erythrocytes per c.mm. Wassermann: Negative (using 0·8, 0·2, 0·05, and 0·012 c.cm. of fluid).

Remarks.

The amnesia at first was complete as far as the illness was concerned; the patient could remember nothing. He recalled being at his depôt, but he could not recollect being sent to hospital, nor any incident which occurred in hospital prior to the onset of the toxic symptoms. He had a vague idea that he had seen me somewhere before, but he could not recall the circumstances. He was greatly mystified as to why he was in hospital and how and when he arrived there. On August 26th (14 days later) he told me that he had suddenly remembered all the details of his case up to the day of the second injection of N.A.B.

The chart records graphically the features of the case in relation to the treatment. The improvement which followed the continuous administration of oxygen, and the injection of urotropine and caffeine directly into the blood-stream, is a striking fact. That it was due to one or other of these measures, or to both, seems a not unreasonable assumption. The prompt treatment of future cases of this type by these two measures may throw further light on the matter. The administration of oxygen was not stopped until 9 A.M. on August 12th, when the patient had been conscious for eight hours.



After History.

The patient returned from convalescent leave on Oct. 5th, 1919. He looked extremely well. His memory was normal.

Wassermann (Oct. 10th), weak positive.

Urine (Oct. 8th).—Cloud of albumin; the deposit contained a few crystals of calcium oxalate; no cells. Oct. 12th: Nil, abnormal.

Blood (Oct. 7th).—Leucocytes, 7200 per c.mm.; polymorphs, 36·8 per cent.; small mononuclears, 59·2 per cent.; large mononuclears, 3·2 per cent.; eosinophiles, 0·4 per cent.; basophiles, 0·4 per cent. (The excess of small mononuclear cells may have been associated with latent syphilis.)

Arneth count: 1, 2, 3, 4, 5.

$$\underbrace{19\quad 29}_{48}\quad \underbrace{31\quad 18\quad 3}_{52}$$

He was discharged to duty on Oct. 14th, 1919.

Note by Surgeon Lieutenant-Commander DUDLEY.

These cases of delayed 914 poisoning are probably accompanied by anoxæmia—i.e., insufficient supply of oxygen to the tissues. In the case just described the attacks of cyanosis are the chief evidence of this anoxæmia, which may well be of the type that Haldane[1] describes as due to the alteration of the dissociation curve of oxyhæmoglobin, whereby oxygen diffuses less easily into the plasma. The highly acid urine with a very heavy deposit of uric acid crystals suggests the possibility of a breakdown in the mechanism controlling the hydrogen-ion content of the blood, which in turn prevents the respiration centre from performing its function normally. The lack of dyspnœa, the loss of consciousness, and the amnesia resemble carbon monoxide poisoning, which is a definite anoxæmic condition. It was these observations, together with a favourable experience of the use of oxygen in influenzal broncho-pneumonia, also an anoxæmia, which suggested that oxygen might be of use in this case. The urotropine was given, as H. Michel[2] had reported successful results with it in acute mania and delirious influenzal broncho-pneumonias, supporting his clinical experience by animal experiments. Intravenous urotropine produces a profound diuresis, and H. Michel thinks toxins are eliminated this way via the kidneys. Should this man's recovery be in any way due to the therapeutic agents employed, it may reasonably be supposed that the oxygen held in check the anoxæmia, while the urotropine stimulated the kidneys to remove some poisonous product resulting from the arsenical injection. As far as the experience of one case goes, it would seem that of the two agents employed the oxygen was the more useful. The Arneth count in this case is interesting as showing how a chemical poison acts the same way as a microbial one on the nucleus of the neutrophile leucocyte. Another arsenic compound, AsH_3, acts exactly the same way.[3] A comparison of the Arneth counts on August 10th and 12th is strong evidence that a large quantity of deleterious substance must have been got rid of by the organism between those dates. While admitting the danger of drawing conclusions from a single case, considering the fatality and anxiety these severe toxic reactions cause, the use of oxygen in these reactions is worth a further trial.

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[1] Brit. Med. Jour., July 19th, 1919.

[2] La Presse Médicale, March 10th, 1919.

[3] Journal Industrial Hygiene, September, 1919.

THE SCHICK REACTION

FOR THE DETERMINATION OF SUSCEPTIBILITY TO DIPHTHERIA.

By H. MASON LEETE, M.B., B.S., B.HY. DURH.,
M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.,
SENIOR MEDICAL ASSISTANT AND BACTERIOLOGIST, EDINBURGH CITY HOSPITAL.

THE object of this paper is to show the results of an investigation made on the subject of the Schick test[1] with a view primarily to the forming of some opinion as to its reliability, its difficulties, and its suitability for application in general and hospital practice, together with the advantages that might be expected to arise therefrom.

The test is performed by injecting a very small dose of diphtheria toxin into the skin, and noting after a certain lapse of time whether there is a reaction produced or not. If there is a reaction the test is said to be positive, and this result indicates that the subject lacks natural antitoxin immunity, and is therefore more likely to be susceptible to diphtheria. This reaction is due to the irritating effect of the toxin on the skin cells. When the patient has circulating in his blood natural diphtheria antitoxin the injected toxin is neutralised, so that no local reaction is produced. The test is then said to be negative, and the subject to be immune to diphtheria.

The toxin injected is a ripened one which has been recently carefully standardised and its minimal lethal dose (hereafter indicated as M.L.D.) accurately determined. The M.L.D. is the smallest amount of toxin that will produce death in a 250-gramme guinea-pig within four days. Such a toxin is taken, and suitable dilutions made until we have a diluted toxin containing one-tenth of an M.L.D. in 1 c.cm. The amount actually injected in the test is 0·2 c.cm. of this diluted toxin, which therefore contains one-fiftieth of an M.L.D.

Technique and Interpretation of the Schick Reaction.

This injection must be intracutaneous and of accurate dosage, and is best made by means of a fine needle fitted on to a hypodermic syringe graduated in tenths of a cubic centimetre. If the injection is made subcutaneously it is quite useless. A satisfactory injection should leave a round, white wheal the size of a large split pea, sharply defined, with the pores showing up well. The most convenient site for the injection is the flexor aspect of the forearm just below the fold of the elbow. The skin surface should be cleaned with a little alcohol or ether previous to the injection and the needle introduced very obliquely, the lumen superficial and when in position showing slightly through the upper layers of the skin. The operation is a painless one: 0·2 c.cm. having been injected the needle is withdrawn. The arm is then inspected after varying periods and a note of the readings made.

A typical positive reaction begins to show distinctly in from 24 to 48 hours and reaches its height about the third day. It is a sharply circumscribed area of redness with definite, though slight, infiltration, circular or somewhat oval in shape, and varying from half to one inch in diameter. This persists for about a week and on fading leaves a brownish, pigmented area which shows traces of desquamation. This pigmented area persists for a month or longer. A negative reaction is shown by the absence of redness and infiltration; after 24 to 48 hours there is nothing to be seen except perhaps a point of redness marking the needle track.

The reaction previously described was, as stated, a typical positive one. To distinguish such from a negative presents little difficulty, but in actual practice two sources of difficulty arise. The first is that in quite a number of cases the positive reaction though present is not very well marked and infiltration is absent. If, however, after the lapse of 48 hours, there has been a definite area of uniform redness, even though it be faint, which persists for several days and is followed later by pigmentation, the reaction is to be classed as positive. The crucial point seems to be that in a real negative test there is nothing to be seen at any period after the injection.

The second and more serious difficulty is the occurrence of "pseudo-reactions" which are non-specific and are believed to be due to the bacterial protoplasm or other protein substances in the toxin, and to be rather of the nature of local anaphylactic phenomena. A practised eye can soon pick out these pseudo-reactions in the majority of cases as they present quite a different picture from the true positive reaction. The redness of the pseudo-reaction appears earlier, reaching its height in from 24 to 36 hours; in shape it is large, oval, not definitely circumscribed, but fades away into the surrounding skin or has round it a secondary areola which is often well marked. There is frequently a large amount of induration associated with it. Its disappearance, like its onset, is rapid, and if it leaves any pigmentation at all it is an indefinite, faint, rather bluish area which does not show scaling. Pseudo-reactions are much more frequent in adults than in children. Though clinical differences are in the majority of cases quite sufficient to distinguish the true from the pseudo-reaction, and one would lay stress especially on the time element, when large numbers of these latter occur, as in dealing with groups of adults, it may be well to use "controls" of heated toxin. The toxin is heated to 75° C. for ten minutes and the heat destroys the specific toxin, but leaves unchanged the proteins to which the pseudo-reaction is due. The control injection is made on the other forearm. There may be no reactions—a clear negative. The two may be precisely alike and go through similar changes simultaneously—pseudo-reaction. The control may show no change and the other give greater or less evidence of a positive reaction. There may be reactions with both, but in the arm receiving active toxin there is a circumscribed area superadded to the pseudo-element which later shows pigmentation—a combined reaction—positive, though rare. As after a little experience it is quite easy in the majority of cases to distinguish a pseudo-reaction from a true positive clinically, the control test need only be used as an after-check in doubtful cases.

It is important to keep careful records and some definite scheme should be adopted and adhered to. Our records were kept in columns under the following headings:—

Name.	Age.	Date.	Ward.	Readings—			Remarks and result.
				24 hrs.	48 hrs.	10 days.	

It is probable that 72 hours for the second reading would be better than 48 hours, as it would allow more time for a pseudo-reaction to disappear and a true reaction to develop, thus aiding differentiation. Under "Readings" we indicate the amount and degree of redness and infiltration, whether that of a true or pseudo-reaction by an arbitrary system of signs such as: + + +, + +, +, −. The final result is only entered up at the end of ten days after consideration of all three readings. A most helpful point is what might be called the gradient of these readings. In a positive case the second reading shows an advance on the first and the third reading definite pigmentation, an "upward gradient" such as: +, + +, + +; while a pseudo-reaction tends to be downward as: + + +, +, −.

Results of Practical Experiments.

Having given a general idea of the Schick test, it is now proposed to give in more detail our practical experience with it. The tests were performed at the Edinburgh City Hospital, the majority upon patients newly admitted to the scarlet fever pavilions. In addition, tests were carried out in other wards for the purpose of detecting susceptibles and protecting them with prophylactic doses of antitoxin, the need having arisen. Some tests were performed on the medical and nursing staffs.

The first difficulty was to secure a satisfactory toxin. In a series of 200 cases the test was performed with a commercial toxin put up for the purpose of the Schick test by a large drug firm. From the first it was evident that either this toxin was weak or that the susceptibility of children here was very much less than that of American children as recorded by American workers on the subject. The reactions were comparatively few in number and in many cases not very well marked. The technique adopted was precisely that which has been described. We were fortunate in having our own impression of the weakness of the toxin confirmed by the opinion of Dr. Abraham Zingher, of the New York City Department of Health, whose experience of the Schick test is unrivalled, and who, by a happy coincidence, visited the hospital while these tests were in progress.

The results of this first series are shown in Table I. A column is added for comparison showing percentage results for a large series of cases (1200 in all) from the scarlet fever wards of the Willard Parker Hospital, New York, as given by Zingher.

TABLE I.—*Chiefly Scarlet Fever Patients. Weak Toxin.*

Age.	Total.	Negative.	Positive.	Per cent. positive.	Per cent. positive (Zingher).
6 months–1 year	3	2	1	33	50
1–2 years	12	7	5	42	68
2–4 ,, ...	40	27	13	32	66
4–6 ,, ...	23	19	4	17	53
6–8 ,, ...	27	22	5	18	37
8–15 ,, ...	59	52	7	12	28
15 and over ...	16	16	0	0	24·5
Total	180	145	35	19·5	45·3

From these results the conclusion was drawn that the toxin we were working with was under strength or otherwise unsatisfactory, a conclusion which was suggested by appearances in individual cases as well as by a consideration of the aggregate. Steps were therefore taken to secure a more satisfactory toxin, and I was fortunate in obtaining the help of Dr. R. A. O'Brien, director of the Wellcome Physiological Research Laboratories, who kindly supplied me with a toxin diluted ready for use in the test. From the first it was obvious that we had obtained an active and satisfactory toxin, the individual reactions being well marked and the percentage of positive results much increased. We found also that the toxin kept perfectly well though diluted to working strength for a period of at least five weeks, which was the longest period that we had any one batch in use. This is an important point, as American workers urge the making up of a fresh working dilution every time the test is used. We did not find this necessary, and our clinical readings were checked by laboratory reports, which stated that the toxin showed no deterioration after a much longer interval than the five weeks mentioned. Table II. shows the results of the tests with this toxin on scarlet fever patients.

TABLE II.—*Scarlet Fever Patients Only. Satisfactory Toxin.*

Age.	Total.	Negative.	Positive.	Per cent. positive.
1-2 years	8	0	8	100
2-4 ,, ...	41	9	32	78
4-6 ,, ...	90	27	53	59
6-8 ,, ...	93	39	54	58
8-15 ,, ...	190	84	106	56
15 and over	88	55	33	37·5
Total	500	214	286	57·2

It will be noticed that a large proportion are positive and that the positive reactions diminish with increasing age; they are more frequent among scarlet fever patients than among normal adults. In a series of 60 normal adults only 17 were positive, which gives a percentage of 28, as against 37·5 in the corresponding group of scarlet fever patients.

Abolition of the Reaction by Antitoxin.

One hundred and ten cases, all of whom had previously received therapeutic doses of antitoxin at periods varying from 1 to 70 days before the performance of the test, were tested, and all except one gave a negative result. The exception was a rather doubtful positive showing redness at 48 hours and faint pigmentation at 10 days. It occurred in a child of 6 years who had received 8000 units of antitoxin 26 days previous to the test. A remarkable feature was the large number of pseudo-reactions which appeared in these passively immunised patients. Sixty-one in this series were controlled with heated toxin, and of these 44 (72 per cent.) gave a definite pseudo-reaction. In a series of 104 controlled cases on the scarlet fever side only four showed pseudo-reactions. It would appear that the serum had sensitised the individuals and rendered them hypersensitive to the proteins of the toxin. A few cases among the scarlet fever patients which gave good positive results received 500 units of antitoxin, and were re-tested next day. Of 15 cases so treated all gave negative results, though three showed pseudo-reactions.

A number of cases which had previously been tested were re-tested at periods varying from one to three weeks to see if they gave the same results. Of 60 cases so treated 59 gave similar results, in many cases the actual readings corresponding to a remarkable degree. One case was recorded as negative which had previously been classed as positive. The error of method in moderately competent hands would thus seem to be from 1 to 2 per cent.

The Value and Future Use of the Test.

Some idea of the value of the test may be formed even in the comparatively short period that the patients remain in hospital. It is well known that in spite of all the usual precautions a few cases of mild diphtheria do occur from time to time in scarlet fever wards, and we proved no exception to this universal experience. Among our series of 500 tested cases 11 cases of mild diphtheria, confirmed by bacteriological examination, occurred. Of these 10 had given a good positive Schick, and the other one had been classed as doubtful, as he gave only a small point of pigmentation after ten days, and had not shown definite earlier reaction. Among a series of tests performed on members of the hospital staff, one subject who gave a negative result developed clinical diphtheria, but, as we have previously noted, there is a small margin of error, and it is possible that the case can be explained on that basis. In a ward where three cases of diphtheria cropped up at the same time we did not immunise two close contacts because both had given negative Schicks, and though of susceptible ages (2 and 3 years) neither developed diphtheria.

A certain number of cases were carriers before admission, or became so during their stay in hospital—that is, the diphtheria bacillus was found in their throats or noses on routine examination, but there were no clinical symptoms. Among 32 carriers, 18 were negative and 14 positive to the Schick test. This latter fact shows that immunity may depend on other factors than the presence of antitoxin.

We have had as yet no opportunity of proceeding to what is one logical outcome of the Schick test—the active immunisation of those giving a positive reaction by means of toxin-antitoxin mixtures—but it is hoped that shortly the difficulties will be overcome, and that we will be able to immunise those susceptible members of the hospital staff who come in contact with the disease. Park and Zingher[2] have shown that the great majority of susceptibles can be immunised in this way, though the process may be rather a slow one, and immunity, as shown by the disappearance of a positive Schick reaction and the presence of antitoxin in the blood, may not develop for several months. With such methods of detecting susceptibles and their immunisation it would seem that a new era is dawning in our attitude to diphtheria, the era of satisfactory prophylaxis; and it is this wide view of the Schick test that one would urge. It is more than of merely clinical value, and is therefore worthy of further investigation and trial, especially by those who are concerned with that most important aspect of medicine—prevention.

Conclusions.

1. The Schick test appears to be of definite value in detecting diphtheria susceptibles, and as such has many possible applications.
2. It is easy to perform and free from any danger.
3. A reliable toxin and careful technique are essential.
4. Once the differences between a positive and a pseudo-reaction are appreciated reading is easy, but if there is any doubt controls of heated toxin should be used.
5. The best times for readings are 24 hours, 3 days, and 10 days after the test.

I have to thank Dr. Claude B. Ker, at whose instigation the work was undertaken, for permission to perform the tests and to publish the results.

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DEATH OF DR. G. F. ATCHLEY.—Dr. George Frederick Atchley died recently at his residence, Redland, Bristol, in his eighty-fifth year. He graduated M.B. of London University in 1861, and shortly afterwards commenced practice in Bristol. He was formerly surgeon to the Bristol Hospital for Sick Children, and at the time of his death was honorary consulting surgeon to the Bristol General Hospital. Dr. Atchley had at one time an extensive practice in Bristol and Clifton and was highly esteemed.

THE TREATMENT OF MALARIA IN MACEDONIA.

BY ARTHUR G. PHEAR, C.B., M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL FREE HOSPITAL; LATE CONSULTING PHYSICIAN TO THE BRITISH SALONIKA FORCE AND TO THE ARMY OF THE BLACK SEA.

IN view of the special interest taken in the treatment of malaria at the present time, it may be opportune to place on record an outline of the methods which, in the course of three seasons' experience, came to be regarded as the most effective in dealing with the disease in Macedonia. In malaria, as in every other disease, the details of treatment are necessarily determined by the special requirements of individual cases, and in the following remarks no more is attempted than to indicate the general lines along which treatment was directed in the various medical units of the command. The first essential in the treatment of every case was found to be the administration of an initial dose of calomel, followed, if necessary, by a saline aperient. This preliminary is of the greatest importance, as, if it is neglected, quinine administered by the mouth may remain to a large extent unabsorbed and inert. In cases of moderate severity quinine sulphate in solution was then given by the mouth in daily quantities of 45 gr. divided into three equal doses for at least three days, and for longer if the pyrexia persisted. The sulphate was chosen for routine use, partly on economical grounds and partly for the reason that the stock of bihydrochloride was for a time limited, and had to be reserved for the special purposes of intramuscular and intravenous injections, and for the small group of cases in which the highly acid solution of sulphate led to digestive disturbances. After the temperature had fallen to normal quinine was continued in the reduced daily dose of 30 gr. until the end of the second or third week from the beginning of [the attack. "Week-end" quinine—that is, 30 gr. daily on two successive days in each week—was then begun and continued for an indefinite period. In the earlier stages of our experience a smaller daily dose of 30 gr. was thought to be sufficient for the initial treatment of cases of ordinary severity, but the great importance of obtaining an immediate maximum effect, especially in primary attacks, was soon recognised, and the smaller dosage was seldom used except in the treatment of relapses of comparatively mild character.

In the treatment of more severe or more persistent cases a daily amount of 60 gr. was given. The whole of this may be administered in four 15 gr. doses by the mouth, or a part may be given intramuscularly. In cases of persistent vomiting or marked digestive disturbance oral quinine is either rejected or remains largely unabsorbed, and the advantages of the intramuscular method are very great. It was found convenient in these cases to give two intramuscular injections, each of 20 gr., one in the morning, the other in the evening, supplemented by 20 gr. of the bihydrochloride by mouth in the course of the day. As soon as the severer symptoms were under control oral administration of quinine was resumed.

It may here be pointed out that in any given case of malaria the amount of quinine and method of administration have to be determined more by the clinical features of the case than by the type of parasite found in the blood. The severest clinical manifestations were sometimes present when the benign tertian parasite only was demonstrable in the peripheral blood, and, on the other hand, a subtertian infection was not infrequently associated clinically with comparatively mild symptoms.

Cerebral Malaria.

On the earliest appearance of cerebral symptoms it was the practice to give quinine intravenously, and there is no doubt that by the prompt employment of this method of treatment many lives were saved. The treatment carries with it certain risks, and it is preferable to give a small or moderate dose in the first place and to repeat it if necessary rather than to give a single large dose. Various degrees of dilution were tried, and the most favourable results were obtained with a solution of 10 gr. of the bihydrochloride in 20 c.cm. of normal saline. Of this solution 15 to 20 c.cm. were injected slowly into the vein. By the use of a fine needle the double purpose was served of facilitating the entry of the needle into the vein and of ensuring slowness of administration. Except in special cases it did not appear that there is any gain in using a higher dilution than that stated above; on the contrary, unfavourable symptoms, such as convulsions and hyperpyrexia, were sometimes observed to follow the introduction of a large volume of fluid in cerebral cases. The intravenous injection should be supplemented by an intramuscular injection, which by its slow absorption ensures a continued quinine effect. Further treatment was determined by the course of the case; in some it was sufficient to continue intramuscular quinine; in others, repeated intravenous injections were necessary. In a few exceptional cases large doses of quinine, up to 100 or 120 gr. in the 24 hours, given by the combined intravenous and intramuscular methods, were needed before the acute symptoms were brought under control: it was uncommon for any unfavourable consequences to follow the use of these somewhat heroic doses. Quinine amblyopia, undoubtedly the most serious complication of quinine administration, was observed in a few instances only, nearly all of which were cases of a severe malarial infection, rendering the use of large doses imperative. With rare exceptions the loss of vision was transient.

Convalescence.—During convalescence a tonic mixture containing iron and arsenic was given, and a varied diet on a liberal scale was found important at this stage in establishing health and preventing undesirable after-effects. In primary attacks it was found desirable that patients should remain in hospital for a total period of at least three weeks, and should not be discharged to convalescent depôt until the temperature had been normal for ten days. In slighter attacks of recurrent malaria a stay of four or five days after the temperature had subsided was usually sufficient. In the more pronounced degrees of anæmia the arsenical element was pushed; this was done either by increasing drop by drop the dose of liquor arsenicalis by the mouth up to the verge of tolerance; or by using an organic preparation, such as sodium cacodylate hypodermically; or, in exceptional cases, by the intravenous injection of galyl. In one or two extreme cases of anæmic cachexia blood was transfused with good results.

Intramuscular quinine.—There was almost a consensus of opinion among clinical observers in the

Salonika command that a given quantity of quinine is more effective and speedy in its action when introduced intramuscularly than when given by the mouth. In the light of this definitely formed opinion it is interesting to note the experience of Captain K. McLay and Captain T. S. Hele, of the Malaria Enquiry Laboratory, who found that parasites disappeared from the peripheral circulation, and that in the healthy subject quinine was excreted more speedily after oral than after intramuscular administration. There is, however, no doubt as to the great value of the intramuscular method in cases of vomiting and other conditions in which intestinal absorption is impaired; when it is desired to introduce a larger amount of quinine into the system than can conveniently be given by mouth; or in cases of cerebral malaria as a supplementary measure to intravenous injections. Considering the enormous number of intramuscular injections that were given, it is remarkable how few and trivial the local ill-results have been; the risk of these is negligible if obvious precautions are taken to avoid sepsis and injury to nerve trunks. A certain limited degree of tissue-necrosis is probably an almost constant result, but it is exceptional for this to occasion any symptoms or signs beyond transient discomfort and a localised induration which speedily disappears and leaves no permanent disability. It was found, however, that a more serious degree of necrosis, amounting to extensive destruction of muscle tissue, may occur if repeated intramuscular injections are given to patients with seriously lowered vitality, such as those suffering from the effects of chronic dysentery; in such cases all the circumstances should receive careful consideration before the use of intramuscular quinine is decided on.

Rectal and subcutaneous quinine.—As an exceptional measure quinine was administered per rectum in doses of 5 to 10 gr., dissolved in 5 to 10 ounces of saline. This method proved of value when it was desired temporarily to supplement the amount of quinine introduced by other channels. The subcutaneous method was also employed in a small series of cases by Major E. B. Gunson, R.A.M.C., but did not appear to possess any advantage over the intramuscular method. On the other hand, the technique is less convenient and the risk of local complications is greater.

Galyl.—There was a marked divergence of opinion among clinical observers as to the value of arsenical preparations such as galyl in the treatment of malaria. At one time there seemed grounds for hope that with the introduction of galyl a preparation of remarkable value and activity had become available, but further experience was disappointing, and in the opinion of most observers the reputation of galyl as an effective agent in the control of the acuter phases of malaria was not established. But the preparation undoubtedly possesses some parasite-destroying properties, especially in subtertian malaria, and it may prove to be of value in the treatment of cerebral cases in which quinine has been pushed to the verge of tolerance and still symptoms of a heavy parasite infection remain. Apart from the question of its specific value, galyl has a definite use in stimulating the activity of the blood-forming organs, and was used with benefit in the severer grades of anæmia with cachexia and marked splenic enlargement following malaria and in convalescence from blackwater fever.

The Prevention of Relapses.

A very short experience in Macedonia was sufficient to bring home to all those concerned with the management of malarial cases the limitations of quinine treatment. Side by side with its remarkable power in controlling the acuter manifestations of the disease and its special importance in such conditions as cerebral malaria, when the life of the patient may depend on its proper use, there was accumulating evidence of its inadequacy in preventing the recurrence of relapses. Innumerable observations were made both at the base and in corps areas with the object of testing the value of quinine in relapse prophylaxis. Many of these have been published, and I wish here only to allude to the results obtained by Major A. G. Anderson, R.A.M.C., in the special malaria wards set apart for observation purposes at a base general hospital. In these wards the best results in the prevention of relapses were obtained by the so-called week-end system, in which 30 gr. of quinine were given on each of two consecutive days in each week. By this method the percentage of non-relapse cases was increased to 78 per cent., as compared with 32 per cent. in the control series, in which no quinine was given after the initial pyrexia had subsided. No inconvenient symptoms arose from the larger week-end doses in the case of patients treated in hospital, but equally good results may be obtained by the same weekly quantity of quinine distributed in daily doses of 10 gr. for six days a week, a plan of treatment which has undoubted advantages in the case of individuals who are occupied in their daily work, as has been pointed out by Sir Ronald Ross in a recent communication to THE LANCET (Jan. 3rd).

BILHARZIASIS:

ITS INCIDENCE AND ERADICATION.

BY FRANK MILTON, M.R.C.S. ENG., L.R.C.P. LOND.,
LATE PROFESSOR OF CLINICAL SURGERY, GOVERNMENT SCHOOL OF MEDICINE, CAIRO.

IN THE LANCET of Oct. 11th, 1919, a paper under the above heading appeared, written by (Mrs.) B. Sheldon Elgood and Major Thomas Cherry, the main points of the paper being: 1. The absence of schistosomiasis from Crete and its presence in Cyprus is due to the free flow of the mountain streams during the summer in the former and the presence of marshes and streams nearly dry in the summer in the latter. 2. The festival of Shem-en-Nesim is the occasion and cause of the infection of the population of Cairo with schistosomiasis, and accounts for the recognised age-incidence of the disease, it being known to occur with greatest frequency among children above the age of infancy and in young adults. 3. Schistosomiasis might be eradicated from Egypt were flocks of ducks kept in the infected districts and directed by the children to the portions of the canal known to harbour infected molluscs.

The first proposition is interesting, but it must be remembered that both the molluscar hosts and the cercaria of the schistosomidæ have great capabilities of adaptation, being even able to thrive in the hot springs at Gabes in Tunis, where the temperature of the water is over 40°C., and it is quite possible that it is not the disease that is wanting in Crete but its recognition. The second contention is of greater interest, and opens up a much more important question. It may very well be that many Cairene children are infected at Shem-en-Nesim, although opportunities for them to become infected at garden pools, fountains, and the Khalig are plentiful throughout the year; but one may well question whether the age-incidence is due to so simple a cause. Shem-en-Nesim is essentially an Egyptian festival, but inquiry will show that the age-incidence of schistosomiasis is world-wide. Wherever the disease is endemic in a high degree—i.e., wherever the chance of infection is constantly present at all periods of life—the greater number of cases of schistosomiasis will be found to occur in advancing childhood and early youth, whilst mature adults are comparatively free; at the same time, the cases among the young population are mild in degree and present but simple symptoms, whilst the majority, if not all, the cases among adults are by comparison severe and show a complication of symptoms.

In running one's mind back over the many hundreds of cases seen in hospital and private practice in Egypt, one finds it hard to recall any but cases of simple hæmaturia in the young or any but severe cases of cystitis, proctitis, fistula, and so on, in mature adults. I am speaking now, of course, of native Egyptians who have passed their lives in the midst of potential infection.

That the age-incidence is the same in all parts of the world is shown by the records of Thomson[1] in the Eastern Soudan; by Conor[2] and Conor and Benazet,[3] amongst others, in Tunis; by Clapier[4] on the West Coast of Africa; by Allen[5] and Petrie[6] in Natal; by Turner[7] at the Cape and in the Transvaal; by Leger[8] in the West Indies; by Ris-quez[9] in Venezuela; by Gonzales[10] in Porto Rico; by Edgar[11] in China; and by Fujinami[12] in Japan. Spring-time festivals, such as Shem-en-Nesim, are universal, but it must need some much more profoundly acting influence than annual excursions of the townspeople into the country to bring about a condition characteristic of a particular disease throughout the world, and I think that this influence in the case of schistosomiasis is that of acquired immunity.

Evidence of Acquired Immunity in Schistosomiasis.

The only direct experiment to prove the acquisition of immunity in schistosomiasis that I am aware of was that of Fujinami,[12] when he used the horse, and when he obtained results which were more than suggestive. But, after all, experiment is hardly necessary when we clearly see the process going on in nature before our eyes.

Take the case of the Egyptian peasant, the greater part of whose life is passed in direct contact with cercaria-bearing water. He acquires the disease early in life, passes blood in his urine for so many months, or it may be for a few years, and then this ceases and he is spontaneously cured, and not only is he cured of this attack but his history will show that although he continues to expose himself to reinfection throughout the remainder of his life he never again suffers from hæmaturia or reacquires the disease. This is the history of the vast majority of the natives of Egypt, but, as we know only too well, there are cases, in great numbers, in which the disease, instead of undergoing spontaneous cure, progresses and shows signs, as it were, of malignancy, lasting for the remainder of the victim's life, and eventually, it may be, killing him.

Between these two extremes, the simple uncomplicated case of hæmaturia going on to spontaneous cure and the progressive case going on to death, there is every grade of duration and severity. These cases show that complete immunity is not acquired in every case and that there are individuals whose resistance is strong and rapidly developed and others less capable of resistance and who do not react defensively to the toxins elaborated by the parasites.

Pathologically the agglomeration of multinuclear cells, stellate cells, and eosinophiles in the bilharzial tubercles found in the liver and elsewhere wherever eggs are lodged, and the excessive formation of bilharzial granulation tissue occurring in connexion with old-standing bilharzial lesions, point to the local action of a toxin generated in the vicinity of deposited eggs. The general systemic disturbance, the fever, and the urticaria exhibited during the early weeks after infection by any of the three species of schistosomes point to the general action of a toxin produced by the parasite. The great increase of the eosinophile elements of the blood during the early months of infection probably indicate the effort of the organism to resist the action of this toxin and to produce immunity to its harmful effects.

In 1916 Fujinami[12] showed that a horse which had recovered from schistosomiasis failed to acquire the disease a second time when experimentally exposed to infection, whilst two other horses, which had never had the disease and were exposed to infection under identical conditions, both became heavily infected.

Sueyasu,[13] working on the blood of this first "immune" horse, obtained a positive complement-fixation, with both an aqueous and an alcoholic antigen.

Last year Hamilton Fairley,[14] in his own words, "adduced definite evidence of an immune body in the sera of patients affected with either the *Sch. hæmatobium* or the *Sch. mansoni* type of Egyptian bilharzia."

If immunity be acquired by an attack of schistosomiasis the disease, in a country where the disease is endemic and where the mass of the population is constantly exposed to the risk of infection, would naturally tend to become a disease of early life exactly as the ordinary zymotic diseases are in England, and as few of us escape in our early years, so do few Egyptians escape schistosomiasis during their youth.

All helminthic infections appear to give rise to some general disturbance of the system of the host, and it is highly probable or, as I venture to think, certain that each helminth produces its own toxin, which is absorbed by its host and sets in train changes which lead to immunity not only against further harmful effects of the toxin, but render the tissues of his body inimical to the parasite itself. These changes not only lead to the death of the original parasites, but prevent the development and growth of any other parasite of the same specie, the immature forms of which may have gained entrance to his body. Were this not so, the fellaheen of Egypt, who are constantly in contact with water containing *Schistosoma cercaria*, would be accumulating new schistosomes throughout their lives, and they would of necessity suffer from the effect of the infection in an increasing degree as their age increased instead of the disease being, as we know it is, one essentially of early life.

The idea of introducing flocks of ducks to eradicate bilharziasis from Egypt is ingenious, but it must be remembered that ducks themselves are liable to attack by *Bilharziella polonica*, and one wonders what would be the result if the village children, either through defective instruction or mere devilment, instead of leading their charges to the beds of *Bullinus contortus* hurried them to the haunts of *Planorbis mareoticus!*

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Coonoor, S. India.

THE ABUSE OF PASSIVE MOVEMENTS.

BY E. STANLEY BRENTNALL, M.B., CH.B.,
F.R.C.S. EDIN.,

SURGEON, SPECIAL MILITARY SURGICAL HOSPITAL, GRANGETHORPE; MEDICAL OFFICER IN CHARGE, MASSAGE AND ELECTRICAL DEPARTMENT, ANCOATS HOSPITAL, MANCHESTER.

THESE remarks are an attempt to accentuate certain widely enunciated principles of treatment which have long been taught by well-known experts in orthopædic surgery, but which, frequently owing to want of interest, are ignored.

It is common for a patient suffering from the results of an injury or disease which has been treated by prolonged immobilisation in splints or otherwise to be referred to a treatment department for "massage and passive movements." This phrase may be seen in the majority of recommendations for treatment brought in from their local committees by pensioners—wounded at least over a year ago—to their treatment clinics. This class of case includes, among many others, conditions such as ankyloses, fibrous and bony, following injury and infection of joint surfaces; muscle and tendon injuries with destruction and fibrous replacement of contractile material, and consequent contractures, or deep-seated matting and adhesions; chronic irritative conditions of bones, joint surfaces or nerves, with resulting reflex spasm; internal derangements of joints with muscle atrophy. In addition, there are the countless simpler injuries, of varying severity, of the bony or soft parts of a limb with accompanying stiffness of joints and restriction of their full range of mobility.

In the treatment of such conditions it is obvious that in some, for example the flaccid knee, passive movements will be useless; in fact, the ultimate aims of treatment here, after the removal of the immediate cause of the derangement, are the provision of a sufficiently active musculature surrounding the joint to control or prevent undesirable passive mobility. In other cases passive movement will be mechanically impossible.

For the relief of such incapacity as is due to actual muscle injury and fibrous replacement, the only possible hope lies in the development by continuous, unwearying encouragement and training—assisted possibly by external stimulation, such as the faradic current—of a voluntary shortening of the muscle substance remaining. This muscle must be singled out individually and "put through its paces" according to a definite scheme of work depending on its capacity. Such individual exercise is a vital introduction to the subsequent training and development of the function of the limb, in which all muscles are made to act in team according to their physiological arrangement.

Limitation of joint movements by contractures derives no benefit whatever from passive movements. In certain cases stretching a joint is of the utmost service, but this is a very far cry from moving it passively. The limb, after a preliminary course of massage, is firmly and evenly stretched, the patient the whole while being exhorted to assist in such movement to the utmost of his capacity. Following this it is replaced in an apparatus designed to exert a constant pull on the shortened structures, and not removed till the treatment is repeated.

Among the uncountable varieties of joint injuries there are of course some which are ameliorated during the course of their treatment by movement through the whole joint range once or perhaps twice. This is, however, only possible in the complete relaxation of surgical anæsthesia, and is then only to be undertaken by the surgeon as a manœuvre from which he can date the beginning of his active joint movements.

Early Voluntary Movements in Recent Infective Conditions.

These remarks, made in reference to disabilities of long duration, are equally true if applied to recent infective and traumatic conditions. It has been very forcibly pointed out by Osgood and others that even in the acute stage of pyogenic joint infections early voluntary movements (first of all simply efforts at movement) on the part of the patient by no means tend in suitably selected cases to increase the disturbance, and vastly influence the future possibilities of the function of the limb. In such conditions passive movements need not be considered.

In early traumatic lesions, when the moment for mobilisation has arrived—and this should not be delayed longer than the acute manifestations or questions of fixation render imperative—voluntary muscular contraction, accompanied by joint movement, holds its place of maximum utility. All the theoretical advantages claimed for massage are immediately and efficiently secured; dangerous areas are avoided automatically; exudates are absorbed; troublesome adhesions and dense infiltration are prevented. No doubt it may be advisable in some cases at the first visit of the patient to demonstrate passively to him the nature of the movement to be produced. This, however, is not treatment by "passive movements"; it is a method of overcoming reflex inhibition of voluntary muscular control. Joint movement can be obtained with infinitely more gratification to the patient actively than by passive treatment, and with complete safety if nature's danger signals of pain, swelling, and stiffness are watched.

Dangers of Passive Movements.

Passive movements, on the other hand, carry with them no guarantee of safety; they are often accompanied by acute uneasiness in the mind of the patient; they have little physiological value from a vascular and trophic point of view; they are often rendered quite impossible by reflex rigidity and stiffness, or if strict attention to the orders of the prescribing authority is conscientiously paid, the passive resistance of the patient is overcome and serious harm is done. In this way slumbering infection or trauma is wakened, and new complications, such as cicatricial and bony overgrowth in the neighbourhood of the lesion, are produced. Unfortunate examples of the result of "early massage and passive movements" are constantly seen in the elbows of patients with injuries to the lower extremity of the humerus. Tender, stiff, and swollen, they are subjected to continual pulling and pushing till permanent and irrevocable damage has been done to the limb; while the alternative treatment of a short, full-flexion, wrist sling, with active elbow movements following the disappearance of the acute manifestations, would have almost certainly restored to the limb in a comparatively short time a good, if not a full, measure of functional capacity.

It is not denied that, judiciously applied, passive movement is occasionally of service, but it is only so in the hands of a surgeon who, for a reason that he is prepared to define, after eliminating resistance, produces the desired movements. It is certainly not so when applied indiscriminately on all and sundry injuries to the limbs.

Summary.

It is time that the phrase "massage and passive movements," as loosely indicating a form of treatment on to which responsibility for future failure may be thrown, should disappear for ever. While of value in a few cases, not only is it useless as a routine therapeutic measure, but in many cases it does definite and positive harm. It is for these reasons that machinery of the Zander type has been excluded from up-to-date physio-therapeutic departments. Voluntary movement, on the other hand, whether reinforced externally or not, undertaken at the right moment, is a valuable method of treatment, physiologically correct, carrying with it its own guarantee of safety.

It is considerations such as these that emphasise the necessity of a single control—that of the surgeon—over the treatment of a patient, no matter whether in the out-patient department, the

ward, the massage and electrical department, or the gymnasium. The surgeon responsible for the ultimate restoration of the patient to his maximum degree of capacity should be responsible also for the treatment the patient receives in the various departments of the hospital. There is no doubt that the system of "watertight" departments with separate heads is to be held to blame for a certain degree of permanent disability following injuries.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY: SUBSECTION OF PROCTOLOGY.

RESUMED DISCUSSION ON DIVERTICULITIS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 14th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair, when the adjourned discussion on Diverticulitis was resumed.

The PRESIDENT said that diverticulitis was an important clinical condition, and was not so rare as was at first supposed. Its greatest importance lay in the fact that it was easily and frequently confused with cancer of the sigmoid or rectum, and was nearly always mistaken for inoperable cancer because the tumour was large and fixed by adhesions. Unless complete obstruction was present, therefore, the patient might be left until serious septic conditions had arisen and it was too late to benefit him by operation. Diverticulitis might be diagnosed from cancer by (1) the occurrence of acute inflammatory attacks, with high temperature and rigors; (2) the absence of blood in the stools; (3) the absence of secondary deposits after some long period. Perforation of the bladder had occurred in 4 of his 24 cases, accompanied by acute cystitis and rigors, flatus and fæces being passed per urethram. He had never seen actual perforation of the bladder from cancer of the intestine. In his series there were two cases of secondary carcinoma supervening upon an old diverticulitis, no evidence of malignancy being present at the time of operation. He attributed the malignancy to the irritation of the chronic sepsis which existed in and around the diverticula, and, bearing this possible danger in mind, if septic symptoms were present colostomy should be performed as soon as possible. From a study of Mr. Grey Turner's specimen he thought it possible that the diverticula had developed above the growth as the result of the stricture caused by the growth, so that diverticulitis might occur secondarily to carcinoma of the bowel, as well as the reverse. With regard to treatment, he strongly urged that the operation of choice in diverticulitis was colostomy above the obstruction, or short-circuiting it, and that only in exceptional circumstances should an attempt be made to do primary resection of these highly septic tumours. The results of colostomy were very satisfactory. If the disease had not progressed too far it became completely arrested after colostomy, and the patient regained normal health.

Mr. W. ERNEST MILES said that it was not easy to determine whether diverticulitis was a new form of disease due to modern modes of life or one which had existed throughout the ages. He did not think the condition was congenital. A more likely cause was increased intra-colonic pressure, the diverticula being hernial extrusions of the mucosa through the muscular coats of the bowel at the weak points created by the passage of blood-vessels. Anything, therefore, which increased intra-colonic pressure was a possible ætiological factor. In every-day life intra-colonic pressure might be increased in three ways. (1) Forcibly resisting the desire to evacuate the bowels. (2) Straining at stool, such as when a formed motion is passed through a narrowed anal orifice, as occurs from stricture of the rectum or from a deposit of fibrous tissue in the submucosa of the pecten, as described by the speaker in an article entitled "Observations upon Internal Piles."[1] The presence of the pecten band is shown by difficulty in emptying the rectum during defæcation, and by the diminished calibre of the fæces passed. (3) The habitual use of copious enemata.

Dr. A. C. JORDAN showed a number of X ray photographs. He considered that colitis was the cause of diverticulitis. The catarrhal state of the mucous membrane induced tight haustral constriction of the bowel, with exaggerated sacculation between the haustra. After some years this condition became permanent, the haustra never relaxing and the lumen of the bowel never opening up fully. Small-celled infiltration then occurred, which led to the formation of a tumour. The saccules must then lose their muscular coat, for: (1) the whole bowel is fatty and sodden; (2) the circular muscle, being in a state of spasm, cannot remain on the sides of the saccules, but must become retracted down to the bowel wall at the base of the saccules; and (3) the muscle layer over the distal end of the saccule is attenuated by pressure from within the bowel, and must be absorbed gradually, leaving perhaps a vestige, such as had been described by more than one speaker. The catarrh itself was due primarily to stasis in the large intestine, secondarily to microbic infection. Other pressure sacs, comparable in origin with those of the large intestine, occurred in the œsophagus: (*a*) at the upper end—the pharyngeal pouch—and (*b*) just below the bifurcation of the trachea—the digital pouch. In the bladder also, when there was a urethral stricture in stout elderly men, multiple diverticula occurred with small orifices protruding through the muscular coat. Such cases were described by Sir Arbuthnot Lane in 1884, and published by him in Guy's Hospital Reports for 1886.

Dr. F. HERNAMAN-JOHNSON laid stress on the presence of small round barium masses in clusters after evacuation of the meal or enema as a whole as the most satisfactory radiological evidence of the existence of permanent diverticula. The appearance was characteristic, and never, so far as he knew, mimicked by spasm or chance residues. Should diverticulitis be suspected, but not revealed by a meal, the administration of belladonna to the limit of tolerance for 36 hours, followed by thorough cleansing of the lower bowel by oil enemas, greatly increased the chance of demonstration by a barium clyster. In fact, the same care should be taken to secure patency of the diverticula as is done in the case of the appendix when it is desired to show it by X rays. The administration of belladonna had also the advantage of relieving many forms of spasm which might otherwise lead to a suspicion of organic stricture.

Perforating Diverticulitis of the Iliac Colon.

Mr. L. E. C. NORBURY described a case of Perforating Diverticulitis of the Iliac Colon in a woman aged 43. There was a history of constipation for 15 years, an attack of diarrhœa 11 years previously lasting one month, and severe griping pains for six months. On examination a swelling was detected in the left iliac region; it proved to be an adherent mass connected with the iliac colon and closely simulated carcinoma. The affected portion of the intestine, some 5 or 6 in. in length, was removed. The ends were closed and a lateral anastomosis made. The result was successful. When the specimen was examined it was found that the gut was much contracted; its walls were greatly hypertrophied and contained fatty tissue in abundance. At one place there was an irregular cavity in the fat communicating with the lumen of the gut and due to perforating diverticulitis. When first examined the cavity contained pus and pellets of inspissated fæcal matter. Microscopically there were all the signs of acute and chronic inflammation, but no evidence of malignant disease. Mr. Norbury considered enterospasm a predisposing cause of diverticulitis by producing hypertrophy of all the coats of the bowel. Constipation followed and the bowel wall became weakened at certain points owing to excessive pressure and infection. In such cases the diverticula would be pressure diverticula. The diverticula might be multiple or simple. A section through the wall showed a well-marked muscularis mucosæ and mucous membrane with Lieberkuhn's glands. The wall might give way with resulting infection of the surrounding fat, which was usually superabundant. Sigmoidoscopy might be of value in certain cases. The lumen of the bowel, in this condition, was very much narrowed. He had seen some cases in which the pelvic colon narrowed as the result of spasm and hypertrophy, and it was in such cases that diverticula might be expected to be present.

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[1] Surgery, Gynecology, and Obstetrics, November, 1919.

Sir **CHARTERS SYMONDS** asked what symptoms, if any, indicated the various stages in the process of communication with the bladder. What would lead one to suspect that communication between a diverticulum and the bladder was a possibility or was imminent? He had seen patients who suffered from pain when the bladder was full, the pain being completely relieved when the bladder was emptied. In these cases pain was also associated with the act of defæcation.

The **PRESIDENT** said that when a communication occurred between a diverticulum and the bladder the symptoms came on suddenly and unexpectedly.

Reply on the Discussion.

Dr. **MAXWELL TELLING**, in his reply, said that the name "sacculitis" was likely to cause confusion between the condition under discussion and sacculation of the colon. The name "diverticulitis" had passed into current use and now served to differentiate the condition from sacculitis. He thought that after middle life diverticulitis would be found to be of considerable frequency. Only a small proportion caused symptoms or gave rise to trouble. A distinction should be drawn between diverticula and diverticulitis. No operation was necessary unless clinical symptoms occurred. Much more work needed to be done before we could rely on X ray findings. The appearance was deceptive in some cases, and we should be careful not to apply the term diverticulitis to a condition of dilatation of the colon in spasm. The relationship of the condition to malignant disease was twofold. In some cases carcinoma developed after diverticulitis, whilst in others diverticula formed round the constriction of carcinoma.

Exhibition of Illustrative Specimens.

A number of illustrative specimens were on view, among which were the following:—

Mr. W. **SAMPSON HANDLEY** exhibited a specimen of Diverticulitis of the Small Intestine produced by traction, after adhesion of the intestine to a tuberculous retro-peritoneal gland. The gland was dragged from its bed, and had formed a band strangulating an adjoining coil, and causing acute obstruction. The patient, a boy aged 6, recovered.

Mr. C. A. R. **NITCH** exhibited part of a Pelvic Colon which was excised for the results of perforating diverticulitis. The patient, a woman aged 49, had suffered from constipation for many years. In November, 1919, she had an attack of colicky pain in the lower part of the abdomen, accompanied by constipation and tenesmus. A fortnight later she had a similar attack, with slight rise of temperature, and passed some blood and mucus. On examination an oval mobile tumour was felt just below the brim of the pelvis on the left side. At the operation the tumour, thought to be carcinoma, was resected, and the continuity of the bowel restored by axial anastomosis. The patient made an uneventful recovery. Examination of the specimen revealed the presence of three diverticula, one of which opened into an irregular cavity of necrotic and suppurating pericolic fat. Microscopic examination showed that the fat around the necrotic area was thickly infiltrated with polymorphs and was hyperæmic.

Dr. F. **HERNAMAN-JOHNSON** exhibited X ray Photographs of a case of Diverticulitis in a woman aged 60. The plates showed: (*a*) by opaque meal, a few rounded shadows external to the main mass of the meal in the sigmoid; (*b*) by opaque enema in situ, very similar appearances; (*c*) after evacuation of the enema, numerous round discrete shadows remaining in the region of the sigmoid. It was the last appearance which led to his regarding the case as one of diverticulitis, and this was confirmed at operation.

SECTION OF PSYCHIATRY.

THE NATURE OF EPILEPSY.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 13th. In the absence of the President and Vice-Presidents, the chair was taken by Dr. **PERCY SMITH**. On the conclusion of formal business the **CHAIRMAN** called upon Dr. E. W. **SCRIPTURE** to read a paper on the Nature of Epilepsy.

Melody Curves.

This paper was in reality a description of a particular method of investigation and its relation to a particular theory of the ætiology of epilepsy. Dr. Scripture first demonstrated with the aid of the epidiascope his apparatus for recording on a smoked drum the variations of pitch in the melody of normal human utterance. He explained that in addition to the normal variations of pitch there were also minute variations which the naked eye was not capable of recognising, but which were revealed by magnification. These finer undulations, measured vertically from crest to trough, showed a variation of frequency of from 100 to 130 per second. The trained ear was able to detect the absence of these secondary undulations, so that Dr. Scripture found himself able to recognise an epileptic subject—in which these secondary variations are absent—simply by listening to the sound of the patient's voice.

Pierce-Clark's Theory of Epilepsy.

He had for several years been unable to account for this inflexibility of the epileptic voice, until he read a theory of the psychogenesis of epilepsy advanced by his old colleague, Dr. Pierce-Clark. This theory states: (1) That the epileptic subject is a combination of the hypersensitive and of the egocentric, which results in a being ill-adapted to the normal environment of man; (2) that he is at the same time stubbornly determined that his environment shall be made to conform to himself; and (3) that the continued strain resulting from his inability to conform to environment is the root cause of his epilepsy. Freedom from conflict is found in unconsciousness.

Dr. Scripture, in supporting this theory, did not hesitate to put forward the life-history of an egocentric dog as an evidence of its probability. The dog's epilepsy only appeared when it was prevented from indulging its every whim. Now the melodious voice is used by that man who is anxious to please. Was it not natural to suppose, therefore, that the unmelodious wooden voice of the epileptic was symptomatic of his essential egocentricity?

Discussion.

Sir **ROBERT ARMSTRONG-JONES** could not find any reason for giving credence to the Pierce-Clark theory of the origin of epilepsy. So many found it difficult to conform to their environment who were yet not epileptic. On the other hand, he thought that Dr. Scripture's apparatus might prove very valuable as an instrument of special diagnosis if it could be shown that certain distinct varieties of melody curve were characteristic of different diseases.

Dr. **BERNARD HART** asked whether such special curves had been shown to exist. He also inquired whether the wooden tone of the stutterer was attributed by Dr. Scripture to the same psychological cause—i.e., egocentricity—as in the case of the epileptic.

Dr. **HELEN BOYLE** was anxious to know whether the cases investigated by Dr. Scripture were being treated with bromides. She believed there were three or four varieties of epilepsy, some curable, some incurable, and some curable under certain conditions and not under others.

Dr. **SCRIPTURE**, in reply, said that it was only those who were uncompromising in their resistance to adaptation who became epileptic. He had found curves characteristic of general paralysis, and was still working upon the curves in dementia præcox. The monotony in stuttering was due to an absence of all voice modulation. In epilepsy the voice is modulated, but the finer variations in frequency are absent. The cases upon which his investigations were carried out had been carefully selected from among patients who had not been treated with bromides. He agreed that there were different varieties of epilepsy.

THE ENDOCRINE GLANDS AND MENTAL DISORDER.

Dr. H. CRICHTON MILLER read a paper on the Rôle of the Endocrine Glands in Mental Disorder. He gave a broad survey of his subject, and dealt with an amazing volume of literature that has been written on the subject. The close inter-relation of psychic and somatic (endocrine) factors in the production of mental disease was illustrated (among other ways) by a discussion of obsessional hypertrichosis. The overgrowth of hair was clearly due to physical changes, but the effect of the realisation of this overgrowth on the mind of the patient clearly resulted in psychic strain. Hypothyroidism influenced the creative even more than the reproductive faculties. Who has ever conceived of a myxœdematous artist? He expressed himself as a firm believer in the psychogenesis of maniac-depressive insanity, yet the regular periodicity evidenced in the phases of this disease must be due to physiological fluctuations. There was here, again, a psycho-physical interaction. Discussing the present empirical methods of treatment with extracts from the ductless glands, Dr. Miller remarked that we stand at the present time between a moderately successful endocrine therapy on the one hand and a vast quantity of uncorrelated laboratory experience on the other. Endocrine disorders might be forestalled (*a*) by early psychopathic treatment, (*b*) by early treatment of septic conditions. At present we attempted neither method. We must learn therefore to repair the damage wrought by the resulting disharmony of the endocrine secretions. This link in the chain of disease was capable of approach both from the mental and physical side. Dr. Miller discussed in detail five possible relationships between the psychic and endocrine systems. As an example of how both psychic and endocrine influences might combine to upset mental equilibrium, he cited the case of a girl patient which had come under his notice. In the space of four months she had been treated successfully by no less than three mental specialists—a psychoanalyst, a believer in suggestion, and, finally, one who believed in the power of his own personality to set the patient straight. At the end of that time she was in so serious a condition that it seemed almost necessary to sign a certificate. Certainly there were psychic factors involved. Her fiancé was a man who had been jilted by her sister, the pleasure she took in being petted at home also made the idea of marriage distasteful to her. But where psycho-therapy had failed a course of treatment with thyroid extract proved successful. The increase in sexual desire resulting from this treatment proved a natural solution of the mental conflict. She was happily married and completely cured.

Discussion on Dr. Miller's Paper.

The CHAIRMAN remarked on the difficulty of following so intricate a subject without having first been able to read a digest of the paper. Dr. Miller appeared to have transferred the conflict into the endocrine system.

Dr. LEONARD WILLIAMS agreed with such parts of Dr. Miller's paper as he felt it within his capacity to criticise. He cited a case of thyroidectomy in which the patient had been unable to take the form of thyroid extract offered her after the operation. Nor were grafts of the gland introduced into the abdomen any more successful. A certain liquid preparation was at last found to be satisfactory in every respect except one. The patient, either in hot summer weather or when seated before a large fire, was subject to a severe sense of chilliness. This was overcome by adding extract of parathyroid to her medicine.

Dr. HARRY CAMPBELL also expressed agreement with the paper. It was one of his aphorisms that the temperament of man, be he pleasant or surly, was due to the composition of his blood. This was true of the congenital psychasthenic and neurasthenic, and the psycho-analysts would eventually find themselves up against this fact. They might solve temporary difficulties by analysis, but they could not change a temperament which had its origin in the chemical constituents which make up the plasma.

Dr. MILLER, in reply, feared that he had not made his thesis clear. He did not really transfer the conflict to the endocrine system. He wished the interaction of the two systems upon each other to be recognised. Dr. Campbell had quoted two examples to show the pre-eminence of the internal secretions. With one of these, the periodical coming into rut of the stag, Dr. Miller agreed—the very periodicity was evidence of a physiological basis. The other example was of the apparent rejuvenation of an aged arthritic dog when living in contact with a bitch during the period of "heat." But this case surely was an example of physical change wrought by psychic stimulation, though the psychic stimulation might very probably be aroused in the first case by an impulse travelling along the olfactory nerves.

TUBERCULOSIS SOCIETY.

RESUMED DISCUSSION ON TUBERCULOSIS IN RELATION TO SCHOOL LIFE.

THE second joint meeting of the society with the Society of School Medical Officers took place on Jan. 12th, with Dr. JAMES KERR in the chair, when the discussion upon "The Various Aspects of Tuberculosis in Relation to School Life" was resumed.

Dr. F. W. HIGGS said that the subject must be viewed from both the clinical, pathological, and from the administrative aspects, and was full of possibilities of research. The presence of an active granuloma in the body was bound to produce symptoms even though diagnostic signs were absent, and every child who did not get on should be suspected of an active focus. These children should be weighed every month until there had been a steady increase for some time. They should be kept under observation by the school medical officer, and doubtful cases referred to the tuberculosis officer. He thought that these officers, if they had not already acquired it, should be given time to increase their knowledge of the subject by the local body which employed them. Radiologists until they became expert were apt, in his opinion, to diagnose tubercle in every case. The following measures were essential to reduce the disease: refusal of admission of tuberculous aliens into the country; isolation of open cases; dustless streets and houses; clean milk; every school an open-air school; education.

Dr. JANE WALKER objected to the stigma which was inevitably placed upon children by the necessity of notification before institutional treatment could be provided. This proved a great handicap to the child in later life and we should be careful before we damned them by this statement. She did not agree with many authorities who stated that once tubercle bacilli had been found in the sputum the cases could not be cured; her experience had been more hopeful. She did not think that household work was an unsuitable occupation for an ex-patient, if the hours were moderate and the meals regular and good. She had been in the habit of employing ex-patients from her sanatorium at Nayland and in one case this had evoked hostile criticism from the London County Council. She kept children as long as possible in sanatorium because if they returned home their education was entirely neglected. Tuberculous children were above the mental average—quick, clever, shallow, and sharp as a needle; they soon became educationally normal under tuition. She thought that continuation residential schools would be necessary when the new Education Act came into force.

Dr. MARCUS S. PATERSON was glad to see the union of the two societies over such an important subject, as it was evidence of team work, which in tuberculosis was so essential. He thought that the word "fresh-air" should be substituted for "open-air" in speaking of schools.

Dr. JAMES WATT said that tubercle in childhood was without doubt the forerunner of tubercle in the adult. Cases should, therefore, be recognised in childhood, which later might become adult cases, and they should be kept under supervision by the various officers of the public health services. There were two methods of doing this—to examine the whole population at intervals, and to pick out all delicate children at school and follow them up. He did not recognise a subtuberculous stage; either the disease was or was not present. He urged the noting of observations in daily routine, so that definite research resulted.

Mr. F. J. C. BLACKMORE said that it was impossible for efficient work to be done with the present staff at the dispensaries, who could not cope with the numbers. The Welsh National Memorial officers had recently discussed the subject and resolved that eight new cases and 24 old cases were as much as any one man could do at one sitting.

Dr. D. J. WILLIAMSON thought that the school medical officer was under extreme difficulties in diagnosing tubercle owing to the noise and the short time allowed for each examination. He did not treat cases at the dispensary until the diagnosis was confirmed.

Dr. A. D. REID considered X ray a very valuable aid to diagnosis. Every child, however, which showed shadows in the chest was not a case for sanatorium. X rays must be taken in conjunction with symptoms and was then a great adjunct.

Dr. F. C. SHRUBSALL said that education and food were the two most important factors—education, because upon it the later earning capacity of a good living wage entirely depended.

Dr. KERR said that his ideas had been considerably modified by the discussion. Standards of efficiency now seemed doubly essential, and more attention should be paid to the pure-air campaign in schools.

The following resolution was passed:—

> That it be referred to the Councils of the two societies to appoint a joint committee to consider the whole subject and to report to the two societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At a clinical meeting of this society, held on Jan. 9th, with Mr. Herbert Chambers, the President, in the chair, Dr. A. C. Warren showed for Dr. F. S. Palmer a case of General Paralysis which had been trephined and for which salvarsanised serum had been injected into the ventricles of the brain. The patient, a man of 37, had had five intracranial injections into the lateral ventricles by Sir Charles Ballance at the West End Hospital for Nervous Diseases. He had also four intrathecal injections of the same serum, with the result that the cell count in the spinal fluid had been very much reduced, and the mental and physical condition of the man had considerably improved. Before treatment he had cerebral and other symptoms. His memory was impaired, he was violent at times, and had great difficulty with his speech. He required assistance in walking, tremor was very marked, the pupils were unequal and failed to react to light, and the Wassermann reaction was positive. The man had shell shock during the Battle of Jutland, May 31st, 1916, and was invalided from the navy in November, 1917. He married in February, 1918, but his wife had no children and no miscarriages. In the subsequent discussion Sir Robert Armstrong-Jones did not agree that there had been any improvement in this particular case, and said that the case presented every evidence of rapid deterioration, and went far to confirm his experience. He had personal knowledge of over 330 cases of general paralysis at Claybury, and the average duration was one year and four months from the date of admission, and possibly the symptoms had been coming on for a month or two, perhaps longer, before admission. He had also personal knowledge of six cases, similar to the one shown, treated by direct intracranial injections, five had already died, and the sixth was regressing. He did not think that surgical treatment of this kind was going to cure or even relieve confirmed cases of cortical parenchymatous spirochætosis; the neuronic damage had already been done and was irreparable. He agreed that there was a great difference in the treatment of syphilitic disease of the cerebral arteries and the meninges with inflammatory symptoms and the presence of polymorphonuclear leucocytes and the treatment of parenchymatous syphilis with the presence of lymphocytes. Sir Robert Armstrong-Jones referred to cerebral seizures of a temporary character as occasionally the first symptoms of general paralysis, and in these cases he had sometimes found ergot useful. He had also seen marked improvement in two cases by thorium hydroxide, although symptoms of general paralysis might remit for long periods without any treatment except rest.—Dr. J. F. Halls Dally drew attention to the importance of complete examination of the cerebro-spinal fluid. If the Wassermann only is done the result might be negative, and therefore extremely misleading, whereas examination of the cerebro-spinal fluid was likely not only to give positive evidence, but also to afford an indication as to the activity of the syphilitic process at the time of examination.—The case was further discussed by the President, Lieutenant-Colonel E. M. Wilson, Dr. Arthur Saunders, Dr. J. Burnford, Mr. Rickard Lloyd, and Dr. Stanley Wyard.—Dr. A. C. Warren also showed for Dr. Palmer a case of Disseminated Sclerosis in a man, aged 23, and Dr. Burnford showed cases of (1) Syphilitic Meningitis; and (2) Exophthalmos in a boy of 16.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—At a combined meeting of this society with the Nottingham Division of the British Medical Association, held on Jan. 7th a lecture on Modern Methods of Treatment in Functional Nervous Disorders was given by Dr. Bernard Hart. The lecturer began by pointing out that the term "functional nervous disease," under which were grouped hysteria, neurasthenia, and various allied conditions, including the great majority of the disorders to which the name "shell shock" was applied during the war, was rapidly becoming obsolete, and was being replaced by another term, "psycho-neurosis." Behind this change in nomenclature there lay a revolution in our conception of the nature of these disorders, and of the treatment applicable to them. This revolution consisted in the advent of the psychogenic theory, which maintained that the so-called functional nervous diseases were due predominantly to causes of a psychological order, and that their treatment must therefore be carried out, in great part at least, by psychological methods. The lecturer outlined the historical development of the psychogenic theory which had taken place since the time of Charcot and the numerous apparently divergent schools and methods of psychotherapy which had thus arisen. These divergences were so obvious that it was easy to overlook the fact that all the methods were built upon a common basis. This common basis consisted in the psychogenic theory, and if its broad principles were kept constantly in view the relative merits of the various methods could be estimated and their applicability and promise of success determined in each individual case. It was clearly necessary, firstly, to determine what psychological factors were playing a part in the causation of the condition in question, and, secondly, to employ methods of treatment which would remove these factors or so modify them that the disorder was no longer produced. These two processes could be termed "analysis" and "rectification." Analysis involved a knowledge of the motive forces of the mind and their mode of action, a knowledge of psychology and psycho-pathology, so that the nature of the causal factors could be deduced from the symptoms present. Rectification included suggestion, persuasion, re-education, and the employment of all the emotional or instinctive forces which could be called to our aid to modify the mental processes of the patient in the desired direction. Dr. Hart illustrated the application of these principles to various types of psycho-neurosis, selecting a series of cases of increasing complexity, and including such conditions as functional dyspepsia, hysterical paralyses and mutism, and the so-called "anxiety neuroses." In conclusion, he pointed out that, although in the course of the lecture he had emphasised the psychological factors and their treatment, because the recognition of their importance constituted the fundamental feature of modern conceptions, yet it was urgently necessary to take account of the physical factors which also played a part in the psycho-neuroses, and to deal with them by suitable methods.

THE ASSURANCE MEDICAL SOCIETY.—At a special meeting of this society, held on Jan. 7th, it was resolved, by a large majority, that the society should remain, as hitherto, a separate and independent one. Accordingly no further steps will be taken with regard to the suggested incorporation with the Royal Society of Medicine.

MANCHESTER ROYAL INFIRMARY.—The second series of the Ellis Llwyd Jones post-graduate demonstrations on Diseases of the Ear will be given at the Manchester Royal Infirmary on Fridays at 4.30 P.M. this session, starting on Jan. 30th. These lectures were founded by Sir James E. Jones, of Rochdale, and three courses of ten practical demonstrations, at which the number of postgraduates attending is limited to 12, are given every year by a member of the aural staff of the infirmary. The first course was given by Sir William Milligan and the present series will be given by Mr. Lindley Sewell, assistant surgical officer to the aural department. Further information may be obtained on application to the general superintendent and secretary, Manchester Royal Infirmary.

Reviews and Notices of Books.

VENEREAL DISEASE: ITS PREVENTION, SYMPTOMS, AND TREATMENT.

By HUGH WANSEY BAYLY, *M.C.* London: J. and A. Churchill. 1919. Pp. 152. 10*s.* 6*d.*

IT is natural that in correlation with the great attention directed to venereal disease within the last few years there should be a large output of manuals treating of this branch of medicine. The time has now come when any addition to the number of works already published on the subject must be justified by some strong claim to originality. Mr. Wansey Bayly's book satisfies this condition. The author brings out in a style which is all his own the importance which attaches to the measures for dealing with venereal diseases from a sociological point of view. If it has no other result, his useful manual will bring home to medical men the great influence which it is in their power to exert in other ways than by the actual treatment of disease. The public at large looks to the medical profession for guidance on the manifold sociological problems associated with venereal disease. It is the plain duty of every practitioner to acquaint himself with the fundamental factors involved in those problems. Mr. Bayly offers to be his guide.

In the clinical portion of his work we think that the author would have been of greater service to the general practitioner had he dealt with his subject-matter in greater fullness. In the section on syphilis we miss any reference to the differential diagnosis of the primary chancre and the various kinds of rash. There is a slip on p. 18, where it is implied that the inguinal glands drain the testicles. We also regret the omission of instruction in the intravenous administration of arsenical preparations by the gravity method. We consider it can hardly be wise to encourage the practitioner to use the syringe until he has had very considerable experience under supervision, which should include an apprenticeship to the administration of dilute solutions by gravity. The account of gonorrhœa would be easier to follow and more helpful to the reader had the author devoted separate sections to the discussion of the disease in male and female. More space might well have been given to the subject of gonorrhœa in women. Nor can the account of the treatment of strictures be regarded as anything but scanty quantitatively and qualitatively.

But having said this by way of suggestion for emendation in future editions, we are confident that the book as it stands will prove both stimulating and useful to practitioners. The student will welcome the book as a crisp and well-arranged summary from which a concise knowledge may be gained of a subject which is not a compulsory part of the medical curriculum. The bold black-and-white sketches are, with the exception of Fig. 1, distinctly elucidatory.

CEREBRO-SPINAL FLUID IN HEALTH AND IN DISEASE.

By ABRAHAM LEVINSON, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School, Chicago, &c. London: Henry Kimpton. 1919. With 56 illustrations, including five colour plates. Pp. 232. 16*s.*

DIE LUMBALPUNKTION.

By Dr. KARL ESKUCHEN, München-Schwabing. Berlin: Urban and Schwarzenberg. 1919. With 21 illustrations and 2 coloured plates. Pp. 188. M. 8.

Dr. Levinson's monograph constitutes a useful and practical compendium of knowledge in all that pertains to the cerebro-spinal fluid. Its subject-matter deals with the anatomy and physiology of normal fluid, its physical, physicochemical, and biochemical properties, with the changes that take place in it in disease, methods of examination, modifications in specific diseases, and intraspinal treatment of various kinds. The book is well illustrated and printed. Its chief merit is the evidence it reveals of first-hand practical knowledge on the part of the author, as anyone familiar with the subject soon gathers. Perhaps one of its defects is the too succinct description of the cytology; plasma cells, e.g., are not mentioned apparently, nor macrophages (Gitterzellen). A compendium of this sort will be very valuable both to the worker in the clinical laboratory and to the physician interested in the scientific side of medicine.

Dr. Eskuchen's treatise on the cerebro-spinal fluid well illustrates the immense advances in knowledge since the days of Quincke, some 180 closely printed pages being packed full of information. Special attention may be directed to the excellent summary of the fluid findings in individual nervous and other diseases, to which some 45 pages are devoted. Valuable as this summary is, it is incomplete without a reference to encephalitis lethargica. The Lange gold reaction receives that full notice which its increasing importance in neurology demands. One of the most interesting sections is on the fluid content in tumour cases and on the differential diagnosis of spinal from intracranial tumours by fluid tests. This monograph can be confidently recommended to all who would keep themselves abreast of the subject.

THE END OF A DREAM.

By A. M. N. JENKIN. London: John Lane. 1919. Pp. 292. 7*s.*

THE novel of "shell shock" was bound to come. Shell shock is too convenient a cliché to be overlooked, devoid though it is of any specific meaning. The author of "The End of a Dream," not content with having his shell-shocked hero commit double murder and suicide, piles Pelion on Ossa by making him a morphinist also. It is regrettable that a whole series of horrors should be attributed to shell shock so-called. If the author knows so much he should in fairness have gone further, and explained to his readers that shell shock itself in no way accounts for the unconscious trends and impulses of the potential criminal. In so far as the book may realise his hope of constituting a plea for sympathetic consideration of the mental wounds of war it may possibly justify its publication.

JOURNALS.

Journal of Hygiene. Vol. XVIII., No. 3, October, 1919.—This number contains articles dealing with a wide range of subjects, as the following brief abstracts indicate. J. Burton Cleland and Burton Bradley, Experiments in the Etiology of Dengue Fever. With clinical notes by W. MacDonald. In continuation of work on this subject the authors find that dengue fever may be transmitted to a healthy non-immune man by the injection of blood taken from a patient on the second or third day of the disease. The incubation period of "artificial" dengue fever is from six to nine days. The virus is not kept back by a Pasteur-Chamberland F filter, and "is resistant to conditions outside the body for several days." Four "generations" of artificial cases of the disease have been obtained, failure to obtain more being due to lack of volunteers. Dengue fever is transmitted naturally in Australia by the yellow fever mosquito, *Stegomyia fasciata*. It has not been possible to transmit the disease to guinea-pigs or rabbits.—Two instances of Human Sera showing Abnormal Anti-Complementary Power, by E. L. Kennaway and Captain A. M. Wright. This condition is of practical importance, since it might lead to errors of diagnosis by the Wassermann reaction. In the cases described the amount of complement fixed by the serum in one case was about six times the normal and in the second four times.—Captain J. W. McLeod, R.A.M.C., gives an account of his experience in the use of brilliant green in the isolation of typhoid and paratyphoid bacilli from stools. His conclusions are favourable to the method.—In a paper on the Bacterial Content of the Air in Army Sleeping Huts A. J. Eagleton shows that in the ordinary infantry sleeping hut there is a stagnant well of infected air extending up to eight feet from the ground level, in which the men sleep. It is proved how readily the meningococcus can spread from a carrier to a susceptible man. The practical conclusion is that better, and preferably ground, ventilation is needed. —An Experimental Investigation of an Australian Epidemic of Acute Encephalo-Myelitis, by J. Burton Cleland and A. W. Campbell. This is an investigation of an epidemic disease which was prevalent in New South Wales in the late summer of the years 1917 and 1918. It was very fatal (94 deaths out of 134 cases), and was confined to districts remote from one another and from Sydney. The disease is communicable to the monkey, the sheep, horse, and calf. Clinical features included convulsions, rigidity, increased reflex activity, mental confusion, and pyrexia; paralysis seldom occurred. The virus was not obtained.—On the Effects of Injections of Quinine into the Tissues of Man and Animals, by L. S. Dudgeon. A concentrated solution of quinine is rapidly absorbed from the tissues. The lesions caused by such solutions are described and figured.—Studies on the Action of Electrolytes on Bacteria, by C. Shearer.

British Journal of Ophthalmology. May–December, 1919.—In the May and June numbers two interesting papers appear bearing on the functions of the pituitary body. They were both read before the Ophthalmological Section of the Royal Society of Medicine.——In the May number James Taylor publishes skiagrams showing enlargement of the sella turcica in two cases of Leber's optic atrophy, supporting a theory of the disease which had previously been propounded by Herbert Fisher. ——In the June number Herbert Fisher himself puts forward a theory of migraine, namely, that it is the result of a temporary swelling accompanying overactivity of the pituitary body. In such a case no bone changes are to be expected.——In the July number Priestley Smith discusses tenometric values in relation to the Schiotz and McClean tonometers, Ernest Thomson contributes some statistics of myopia in school children, and H. R. Jeremy records an interesting case of cataract following thyroidectomy. No previous case of the sort has made appearance in the English literature, although two cases have been described in Germany, and an experimental case of the sort in a dog was recorded by Walter Edmunds in 1916.——In the August number Charles Maghy sets out a case of Bilaterial Glioma of the Retina, from the Moorfields laboratory, in which the second eye was excised at the age of 20, 18 years after excision of the first eye.—In the August and September numbers there is a survey of 1201 cases of concomitant squint occurring in the practice of the late Mr. P. W. Maxwell, of Dublin. —In the same numbers a somewhat abstruse paper, by E. M. Eaton, appears, read before the Royal Society of Medicine, on the Visual Perception of Solid Form. The theory of corresponding points on the two retinæ to explain binocular vision is tried and found wanting. The alternative explanation favoured is a psychic rather than a physiological one. "The perceptive axis of vision lies between the fixation point and the middle of the interocular space. Its use involves a psychic modification of all visual angles similar to that which enables us to interpret foreshortened images in accordance with their true values. The perception of position in three dimensions is a function of the sense of directional projection of the two eyes." "The binocular element in vision contributes a valuable quota to stereoscopic perception, but it is one of many factors. The relative part of each factor varies with the type of view, and no individual factor is universally essential." The sentences quoted represent the most striking conclusions. The arguments by which they are supported must be studied in the original paper.——In the October number J. Gray Clegg discusses the notation of the axes of cylinders and the various systems in use in this and other countries, in the hope that uniformity in this matter may be attained.—In the same number J. A. Wilson give details of five cases of gunshot injuries of the cortical visual areas.——November: A. F. MacCallan: Causes of Non-trachomatous Ophthalmia in Egypt. For some years this observer has been publishing papers displaying the connexion between the rise of temperature in the summer months and the incidence of different forms of conjunctival infection. There always is a very marked increase of cases during the summer months, in which increase the gonococcus plays the chief part. Taking the gonococcal cases by themselves, their increase is found to follow the spring rise in temperature, not reaching the maximum until October. Conjunctivitis due to the Weeks bacillus, on the other hand, shows its maximum incidence in the months of April and May. Conjunctivitis due to the Morax bacillus is comparatively evenly distributed through the year.—Sydney Stephenson: Eye Symptoms as the Only Indication of Fractured Base of the Skull. Cases in point are detailed showing one or more of the following symptoms: subconjunctival ecchymosis, retinal hæmorrhages, paresis of one external rectus, and optic atrophy.——December: G. M. van Duyse, jun., from the Ophthalmological Laboratory of Ghent, contributes a paper on the pathology of colobomatous and microphthalmic eyes.—A. S. Percival relates two cases of diplopia after violence which he diagnosed as injury to the trochlea of the superior oblique muscle. The report is given in full of the Council of British Ophthalmologists on the desirability of a special qualification in ophthalmology.

Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, with the coöperation of Professors HICKSON, BOURNE, GRAHAM-KERR, and MACBRIDE. Vol. LXIII., Part 4, and Vol. LXIV., Part 1. London: J. and A. Churchill. 1919. 10*s.* 6*d.* per part.—*Journal of the Royal Microscopical Society.* Edited by C. SINGER, assisted by Professor THOMSON, Messrs. DISNEY, RENDLE, and BROOKS. 1919. Part 1. 10*s.*—These two numbers of the *Quarterly Journal* contain between them 13 communications upon very various zoological matters, including technique, and one review; of these only a few can be selected for notice here. Professor Gilbert Bourne sketches, in an article entitled "Fifty Years of the *Quarterly Journal of Microscopical Science* under the editorship of Sir E. Ray Lankester," the immense progress of zoological science accomplished in that period as illustrated by the work published. The names of the authors mentioned include by far the greater number of prominent zoologists of to-day and the immediate past. Almost the only conspicuous name omitted which we have noticed is that of Professor Bourne himself.—A highly interesting paper by Mr. Bahl, of the Allahabad College, contains a renewed investigation, under favourable conditions, of the nephridia of certain Indian earthworms belonging to several species of the genus *Pheretima*. A new fact of importance is the discovery of abundant openings of the excretory tubes into the gut, thus throwing doubt upon (as Professor Woodland observes in a footnote), or at least demanding a reconsideration of, the view held by many that these organs are purely ectodermic in origin. Mr. Bahl also asserts that the multiple nephridia of the *Pheretimas* are isolated, and that there is no connexion between those of one segment and the antecedent and succeeding segments. He does not, however, as we understand him, do more than assert this generalisation for the species with which he was actually concerned. —In an article On the Terminology of Parthenogenesis the editor usefully reviews and corrects existing phrases in vogue among biologists for the various phenomena of asexual reproduction. For instance, the production of a tadpole from an unfertilised egg which has been stimulated to development by the scratch of a needle, or the "broods of greenfly produced without the intervention of a male parent" have been spoken of as "parthenogenesis." It is impossible, as Sir Ray Lankester says, to use the same term for the condition of the mother and that of her offspring. Such cases are best termed "impaternate." Minute cytological work is shown in Mr. Goodrich's paper on the pseudopodia of invertebrate leucocytes, which are not, he shows reasons for thinking, actual, more or less rod-like, mobile, outgrowths, but the optical expression of folds upon an extremely delicate membrane.——The issue also contains the Presidential address by Mr. J. E. Barnard, a technical memoir upon eye-pieces, and the usual abstracts, so useful to zoologists and botanists, of current literature on those sciences.

THE LANCET.

LONDON: SATURDAY, JANUARY 24, 1920.

The Insurance Practice Settlement.

AFTER strenuous exertion on both sides a settlement was reached late on Wednesday evening, Jan. 14th, between the representatives of the Ministry of Health responsible for administering the Insurance Acts and the representatives of the practitioners who provide the medical benefit, and a letter embodying the terms of this settlement reached the secretary of the Insurance Acts Committee of the British Medical Association in time for insertion in the supplement to last week's *British Medical Journal.* It is now generally known that the increased capitation fee of 11*s*., offered by the Government in place of the 13*s*. 6*d*. claimed by the Conference of Panel Committees, was at first refused by the Insurance Acts Committee, and then, in accordance with the discretion given to the Committee at the Panel Conference, referred to arbitration. The reference to the arbitrators, who will, we understand, include a medical man, an actuary, and a lawyer, will be to advise the Government what capitation rate will afford to insurance practitioners fair remuneration for the services required under the new Medical Benefit Regulations for 1920. The arbitration is to be confined to this single issue, it is to be completed within four weeks, and the award is to be binding upon both sides. On the part of the practitioners the condition is attached that panel committees will do all in their power to secure a full and efficient medical service, with good will, under the settlement as a whole.

Whatever the award may be, and it is important in the interests both of the insured population and the medical service that this should approach the figure desired by the medical profession, it will have the element of immediate finality. The capitation basis of 11*s*. comes into force as from Jan. 1st, the basis as settled by arbitration on April 1st, and it is part of the pledge given by the Insurance Acts Committee, on behalf of insurance practitioners, that their work will be done with good will on this financial basis. It was obviously necessary to fix some basis to enable both parties in a huge coöperative concern to carry on during a transitional period. But the settlement also contains the element of future flexibility. The Government has elected not to enter upon any arrangement binding for a term of years, but, in view of further legislation affecting the whole working of the Insurance Acts, to leave open the path to readjustment after consultation with the representatives of panel practice. Changes, as they become inevitable, will be made step by step after mutual counsel between the contracting parties, and with the increasing confidence of honest intention which is always the result of familiar intercourse. The ground is now being laid for a more informed, and therefore a fairer and easier readjustment, when the time comes to discuss again the basis of remuneration.

Another aspect of the conversations between the Ministry and the Insurance Acts Committee is of equal or greater importance. In most cases, it is stated, the Ministry met the desires of the Panel Conference, and the new Regulations which come into force on April 1st represent a very large amount of give and take. Only in regard to the clause dealing with the transfer of practices is the concession obtained less than had been hoped for. But here, it is to be remembered, the Regulations allow a large liberty in administration, and as the clause now stands the possibility is not excluded of Insurance Committee and Panel Committtee arranging for the allocation of patients in a manner best adapted to local needs, with proper consideration both for the rights of the patient and of the doctor. No one who looks beyond the conditions of present-day insurance practice into the future possibilities of prevention of disease can postulate the goodwill of a practice as an unalterable and inalienable attribute. Wise foresight suggests the adoption of some pension scheme which should gradually free the practitioner from dependence upon his patients as goods and chattels. Relief from carking anxiety, a main object of the Insurance Acts, is just as desirable for the practitioner as for the insured person.

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Diverticulitis.

DIVERTICULITIS is a comparatively new disease, if we hold that a disease is born by being given a name. The first classification of cases of the disease was made in 1908 by Dr. W. H. MAXWELL TELLING, who opened the recent discussion on the subject before the Proctological Subsection of the Royal Society of Medicine, and since 1908 the condition has received more and more notice, until at the present time its importance and its frequency are being fully recognised. The condition, unnamed, was identified as far back as 1885 by Sir ARBUTHNOT LANE. By the term diverticulum is meant a pathological sacculation proceeding from some portion of the large intestine, and chiefly seen in relation with the sigmoid flexure. The walls of these diverticula are formed not by all the coats of the bowel, for the muscular coat is wanting. As to their ætiology there is nearly general agreement that they must be explained as caused by some form of increased pressure within the bowel, but there is evidence that this is not the whole truth, for in some cases many are present and in others they are few in number. In some there seems to be a special weakness of the involuntary muscle fibres of the body, for cases have been described in which diverticula of the bladder were found to co-exist with diverticula of the colon. By certain writers stress has been laid on venous congestion as a cause of the existence of diverticula, but in a series of bodies examined by Mr. HAMILTON DRUMMOND, many of them were those of elderly people with chronic heart disease and marked back pressure, yet in none were diverticula found. Evidence of intestinal obstruction was present in only 10 per cent. of the cases of diverticulitis, but this does not preclude the possibility of increased pressure within the bowel in the other cases. LANE, in a paper written for the Guy's Hospital Reports, and quoted from elsewhere in this issue of THE LANCET, described a case of multiple diverticula from the colon, and expressed the opinion that the two factors in the production of the saccules were the action of tension and the presence of fat. The suggestion that these diverticula are congenital in origin was put forward before the Subsection by Mr. G. GREY TURNER, but this idea did not find favour with Mr. ERNEST MILES, who regarded an increase in the intracolic pressure as the essential cause. It will be best at present to confess that we have no certain knowledge of the mode of production of these protrusions, but, as they have been described almost exclusively in those over middle life, the probability of their being truly congenital in origin is but small.

Except to those who have devoted special attention to the large bowel the structure of diverticula may be unknown. For the most part they are small and almost invisible from the exterior of the bowel; and even when the mucous membrane is examined the apertures may easily escape notice unless search is specially made for them. These openings are often very small; they may be as minute as a sixteenth of an inch in diameter; rarely do they exceed a third of an inch, and often they are completely concealed by the rugous mucous membrane. As the diverticula pass outwards they may enter the appendices epiploicæ, and they are then entirely invisible from the exterior. So long as a diverticulum is not inflamed no harm seems to follow its existence, but, as in the case of the vermiform appendix, when fæcal matter collects within it, inflammation is very liable to arise, and from that inflammation several results may follow. The simplest is the formation of adhesions to the surrounding structures, but it is seldom that the consequences are limited to this. The fæcal contents form a reservoir of bacteria and their toxins. The mucous membrane of the diverticulum ulcerates, and this may lead to perforation with extravasation of the contents into the peritoneal cavity, with all the symptoms and results of peritonitis, or the adhesions which have previously formed may prevent the more serious consequences of perforation. If the diverticulum has become adherent to a hollow viscus a fistulous communication will be established between the colon and the other viscus, and in this way may arise colo-vesical or colo-vaginal fistulæ. Again, inflammation of a diverticulum may result in an extensive infiltration of the tissues around the colon with the formation of many adhesions, so that a mass is formed, and to this condition the name of peridiverticular fibrous hyperplasia has been given; this oftentimes leads to narrowing of the gut, with more or less obstruction. Many of these cases have been mistaken, and excusably mistaken, for instances of carcinoma of the bowel, and have been treated by colostomy or colectomy, as appeared best. Peridiverticulitis forms a solid mass in the wall of the bowel with obvious narrowing of the lumen, and the diagnosis between it and malignant disease may be very difficult indeed. Here the X rays may afford assistance. Dr. IVENS SPRIGGS at the recent debate showed that even small diverticula no larger than a currant could be clearly recognised on an X ray plate; but the diverticula which admitted the barium meal were permeable and probably healthy. The presence of healthy diverticula is suggestive of others which may be inflamed, and therefore the X ray plate may be helpful.

The treatment was summed up by Mr. R. P. ROWLANDS in the course of the debate, when he urged that every surgeon, in operating for obstruction of the colon, should keep in mind the possible presence of diverticulitis. Early resection of the whole of the affected portion of the colon with end-to-end anastomosis is the operation of choice, but in late or complicated cases temporary colostomy may be advisable. Sometimes, indeed, it may be desirable to make a short circuit, leaving the resection for a subsequent operation, but this procedure can be required only in late and serious cases. As Sir JOHN BLAND-SUTTON well said, the most important point about diverticulitis is its mimicry of cancer of the colon. Of the many cases that have been recorded of the spontaneous disappearance of an abdominal tumour some were doubtless instances of diverticulitis; there are patients who have refused operation for what they were assured by physicians and surgeons of great repute was cancer of the colon, and yet have recovered to the surprise of their medical advisers. It must never be forgotten that an apparent carcinoma, causing chronic obstruction of the large bowel, may be after all diverticulitis, demanding similar treatment, but with a vastly better prognosis. The discussion at the Royal Society of Medicine has been a valuable one. Many to whom diverticulitis was little more than a name will in future have clear ideas of its nature and be on the look-out for its appearance.

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Medical Education and the Poor-law Infirmaries.

SIGNS are not wanting of a new attitude on the part of the public towards medical education. This, they begin to see, is no longer the affair of the schools of medicine only; it has become a matter of public interest. That new standpoint is a legacy of the war, the natural outcome of public interest in recruiting and in pensioning boards, and more generally in the work and methods of the profession in war-time. The General Medical Council, the State authority upon medical education, has long seen and anxiously discussed the problems ahead, and it is conceivable that in the wider diffusion of experience that now exists some of the difficulties will disappear. The new agreement between St. Mary's Hospital and the Paddington Board of Guardians, by which the clinical material of the Paddington Infirmary will become available for the instruction of the medical students of St. Mary's Hospital, is an excellent example of recognition by the public of scientific needs. The idea is not new, but now that it has been put into practice it should follow that other medical schools will seek to make similar arrangements, when the departure will be seen to constitute a considerable event in the history of medical education and in the life of the Poor-law infirmaries. During the war the Paddington Infirmary was used as a military hospital. When it reopens in February there will be no workhouse, and the infirmary will provide accommodation for 600 beds.

The possibilities of undergraduate instruction in infirmaries are not generally appreciated. In 1913 some 25 per cent. of the total admissions to the Paddington Infirmary were under ten years of age, and in the same year more than half the cases remained in the infirmary for less than one month, over three-quarters for less than two months, and less than 5 per cent. for more than six months. There is therefore no foundation for the widely prevalent view that the wards of these institutions are filled with chronic and incurable disease in aged subjects. The infirmary, in fact, contains about equal numbers of two types of case. In the first group, the nature of the patient's illness and its severity in no way differ from the clinical material in the wards of a general hospital; the majority of cases are children, or patients requiring surgical treatment. The second group is largely made up of a type and stage of disease that is not generally found in the wards of those hospitals, and provides valuable material for investigation and instruction in every form and phase of chronic illness, but especially in diseases of the respiratory tract and in chronic heart disease. In particular this is true of pulmonary tuberculosis. The out-patient department for that disease at a general hospital does not at present meet the need for undergraduate instruction; accommodation in the wards for cases in both the early and late phases of the malady is necessary, but it is not provided, or is insufficiently provided. This the infirmary supplies. The cases received there fall into two groups: firstly, those which are detained pending arrangements for sanatorium treatment; secondly, those which are too advanced to profit by such a course, and which are kept indefinitely. Here indeed is fine material for medical instruction.

The surgical wards of the infirmary are enriched by the inability of general hospitals to take into their beds the number who require admission. Every year a considerable proportion of patients, whose names are added to the waiting list by the out-patient surgeons, have to be subsequently informed that there is no prospect of their being admitted to the hospital. Accordingly, in the compilation of the in-patient waiting list this shortage of beds is kept in mind, with the result that patients whose disease is not likely to be cured by a short stay in hospital are only added to the list with reluctance or for some particular scientific reason. The selection goes farther, for patients suffering from septic infections, such as cellulitis, are referred to the infirmary, and it has become necessary, in some general hospitals at least, practically to exclude all fractures from the wards except such as require an open surgical operation for their reduction. Hence a very large proportion of fractures of the lower limb are passed on to the infirmaries by these hospitals, and the modern student has less opportunity than his predecessors of becoming acquainted with the treatment of fractures. It has been possible for him in the past to go through his course only rarely seeing the treatment of such diseases as tuberculosis of the spine and hip, chronic septic osteomyelitis, the palliative treatment of malignant disease, and some acute inflammatory and orthopædic conditions. Further, a hitherto distinct hiatus in medical education should be filled by the provision of psychiatric clinics for incipient mental disease, while if these clinics are established in the infirmaries there is need for a recognised authority on psychiatry to direct the treatment, and for workers in pathology to take part in scientific investigation. In an agreement between a general hospital and an infirmary these needs should be met, and the student have an opportunity of seeing the early manifestations of mental disorder.

The arrangements between St. Mary's Hospital and the Paddington Infirmary will result in something more than an addition of 600 beds to those at St. Mary's. They will provide facilities for instruction and investigation which do not at present exist in general hospitals. It is probable, too, as the outcome of the provision of a wealth of clinical material, that out-patient teaching at the general hospital will devote itself more to the beginnings of disease, and to a type of case in which the malady is not sufficiently advanced to provide gross physical signs. When the student's preoccupation of mastering signs is safeguarded elsewhere, he will be encouraged to follow an illness throughout its course and to interpret the first warning symptoms in the light of subsequent events. The public gain directly by the conversion of a Poor-law infirmary into a modern hospital, equipped with the same resources as those of a general hospital, and, like it, able to enlist the services of a large staff. They gain indirectly in that greater facilities for becoming efficient are placed in the hands of those who in the future will become responsible for the health of the country; and it is in the recognition by the guardians of this indirect gain that the real significance of the change is to be found. While the cottage hospital exists for the care of the sick poor and for the provision of local benefits, the general hospital to which a teaching school is affiliated has a larger mission. A teaching school exists to set up a standard of efficiency throughout the country, to add to knowledge, and to secure the common good by sending out from its walls graduates fully equipped to take their part in the work of medicine, preventive as well as curative. The success of that work is brought a little nearer by the action of the Paddington Board of Guardians.

Annotations.

"Ne quid nimis."

UNSTABLE HYDROGEN PEROXIDE AND ITS STABLE SIMILARS.

THE announcement by the War Office in an Army Council Instruction issued recently that the supply of hydrogen peroxide to military hospitals will be limited to very special cases which cannot be treated satisfactorily by some other antiseptic will be viewed with dismay by those who have cause to appreciate the application of this cleansing and healing agent. We understand that this action has been taken in view of the unstable nature of hydrogen peroxide solution, the difficulty of obtaining and cost of suitable containers, the excessive loss by bursting and leakage, the great bulk of the liquid, and the high cost of transport. The virtue of peroxide of hydrogen in medical practice lies in its profuse oxygen content—a fact, of course, which gives rise to its instability. Were the compound stable, medicine would probably have a very limited use for it. But the extemporaneous preparation of hydrogen peroxide solution is by no means difficult, and we bring the suggestion forward to the notice of those who may suffer from a curtailment of supplies. It is well known that there are per-salts—as, for example, the per-borates and the per-carbonates—which readily yield available oxygen. All these are obtainable in the dry state, and therefore the drawbacks raised by the War Office as regards instability, loss of oxygen, difficulty of safe transport of hydrogen peroxide, do not obtain. As an example it may be quoted that 170 g. of sodium per-borate dissolved in a litre of water containing 60 g. of citric acid will give the equivalent of a litre of peroxide of hydrogen of "10-volume strength." The ingredients should be available in tablet form. Then there is per-carbonate of sodium, now made in commercial quantities, which can be similarly treated for the production of peroxide of hydrogen. It may indeed be an advantage to use these salts without the addition of an acid at all, for they practically present the oxidising power of peroxide of hydrogen in the presence, of course, of the alkaline salts respectively, borax and carbonate of soda. These points may be well worth considering where, though the need of peroxide of hydrogen may not be urgent, the active antiseptic and healing agency of its nascent oxygen is indicated or preferred.

THE NEED FOR ISOLATION HOSPITALS.

THE seasonal wave of the more common acute infectious diseases has by its unwonted volume drawn attention to the need for greater facilities for isolation. The daily press has brought embarrassing publicity to a number of highly respectable districts in the throes of scarlet fever, or diphtheria, or measles; while many others, probably no less implicated, have rejoiced to be able to blush unseen by the relentless eye of the reporter. This attention on the part of press and public, while rather fortuitous and undiscriminating in the choice of district to be pilloried, nevertheless serves a most useful purpose in awaking the communal conscience to the necessity for further means of isolation. For it must be recognised that although our cities and larger towns are second to none in the world in their provision of isolation hospitals, the small urban districts and a considerable proportion of the rural districts have notoriously failed to meet their responsibilities in this respect. Moreover, for two other, and very different, reasons there is some danger of a slackening of pace in the provision of isolation hospitals. In the first place, it was becoming somewhat of a fashion before the war to look coldly on the spread of isolation hospitals, to ask whether they were in fact a serious influence in diminishing the prevalence of infectious diseases, or whether they should not now be regarded as a not altogether necessary luxury in view of the decrease in virulence of most of the diseases with which they had happened to be concerned. In the second place, there has of late been a danger—perhaps as yet rather potential than actual—that the enthusiastic administrator of to-day, seeing that preventive medicine is now emerging from the lower plane of supervision of the environment to the higher one of care of the individual, may, in looking upwards, be oblivious of the many and huge gaps in that supervision.

The chief difficulty, however, is naturally that of the purse. Even before the war it was more than difficult for the average rural authority to provide its own isolation hospital. With the present enhanced prices it becomes almost impossible. From all points of view the intervention of the county council to exercise its powers of combining rural and the smaller urban authorities into hospital districts becomes the wise solution of the difficulty. Not only are the hospitals of a combined hospital district more likely to be economical in construction than the individual diminutive hospitals of separate authorities, but they can be better staffed and more efficiently managed, while the introduction of the motor ambulance has abolished one of the main difficulties in the practical utility of such hospitals for a wide area. Even under the Isolation Hospitals Acts of 1893 and 1901 county councils had wide powers in this respect, and could take action either on a petition by a district council or by 25 ratepayers, or on a report by the county medical officer of health. The procedure involved in the holding of an inquiry and the subsequent definition of a hospital district and formation of a hospital board was sluggish in the extreme. A stimulus to speedy action was given in 1913 by the Public Health (Prevention and Treatment of Disease) Act, which made provision for the recognition of county councils as local authorities for the purpose of erecting isolation hospitals. By obtaining an Order from the Ministry of Health, a county council can itself provide such hospitals and charge the cost to the districts concerned. It is now time that county councils should awake to a full sense of their increased powers and obligations. Their medical officers of health should be directed to report on the existing isolation hospital accommodation in the area, as a preliminary to a scheme for provision which shall at last be adequate for the needs of the community.

AN IMMUNITY REACTION.

THE Schick test for susceptibility to diphtheria has so far not received the same attention in this country as in America, or as its value would seem to warrant. Like the von Pirquet reaction in tuberculosis and the Calmette ophthalmic reaction in typhoid, the Schick test depends upon the presence or absence of specific antibodies in the blood, though according to Dr. H. Mason Leete's suggestive paper, which we publish in this issue, it is much more reliable than either of the former tests in practice. Dr. Leete's experience of the Schick test was obtained in the wards of the Edinburgh Fever Hospital, where he made an extended trial of its reliability as an indicator of diphtheria susceptibility, the results of which he embodies in his article, together with detailed instructions as to the necessary technique. According to Dr. Leete, with due care in its application, one important factor in which is the use of a reliable, carefully standardised toxin, the error in experienced hands is only 1 or 2 per cent., a pronouncement which constitutes a high tribute to its efficacy. As a test for the presence of diphtheria antitoxin in the blood in the case of persons who have been passively immunised against the disease, its value is amply confirmed by Dr. Leete's experience. Whether, however, as Dr. Leete believes, the reaction can be regarded as an equally trustworthy indication of the presence or absence of natural antitoxin and consequent immunity, or the reverse, is not so certain. The question is one not easy of settlement, since the crucial test—viz., the experiment of artificially imparting the disease in cases previously tested—is inadmissible in the case of human subjects, and to arrive at a conclusion of any value on this point under normal conditions would call for observations extending over a very long series of cases. As far as they go, the cases cited by Dr. Leete of patients who took diphtheria in hospital, and whose reactions had previously been noted, support his contention. In 10 out of 11 scarlet fever patients who contracted diphtheria the Schick test had been positive; in one the test was doubtful. He also quotes the fact that in two young children, who did not contract the disease although they had been in contact with diphtheria, the Schick reaction was negative. This experience, though confirmatory so far as it goes, can hardly be regarded as very convincing.

That different persons should evince varying degrees of susceptibility to infectious disease is interesting in itself, but the fact has a very important bearing on the administration of our isolation hospitals. This is particularly true of diphtheria by reason of its proneness to affect young children, especially such as are suffering or convalescent from recent inflammation of the faucial and naso-respiratory mucous membranes, as is the case in scarlet fever and measles. Any test of susceptibility to diphtheria which is at once reliable and easy of application should prove of the greatest service in hospitals largely devoted to the treatment of children. Not only would it enable measures to be taken for the protection of the children themselves, but it would also provide for the safety of the nurses and others attending on the diphtheria patients. The test should be most helpful in the allocation of both patients and staff, beyond which, in face of emergency, it would prove the deciding factor in giving prophylactic injections of serum in many cases, and, if thought fit, even in attempting an active immunisation in certain instances. Amongst the community at large the scope and utility of an immunity test like the Schick reaction would not appear to be anything like as great as in hospital practice, at any rate in this country. In America, however, where the diphtheria mortality reaches a higher figure than with us, the application of the Schick test is becoming more extended; indeed, we are informed that the New York Board of Health not only invite mothers to bring up their children to be tested, but even advise and undertake an active immunisation in positive cases.

TRANSFUSION OF BLOOD IN CIVIL PRACTICE.

ATTENTION has again been directed to the important subject of the transfusion of blood by an excellent summary of the literature of the subject which appeared in the December number of *Medical Science*. The extensive use of this means of resuscitation of badly wounded men during the war led to a temporary interest being taken in the subject and a considerable diffusion of knowledge of the methods, but it is possible that, with the end of the necessity for practising transfusion on a large scale may come a waning of interest, and that the knowledge may tend to remain restricted to those who practised it during the war. Another factor in the restriction of the knowledge and use of blood transfusion is the large claim that has been made for gum-arabic solution as a substitute for blood in the treatment of shock. This claim has not been fully admitted by many of those who have used gum on a large scale, but it is nevertheless widely believed that gum solution is "as good as blood" for purposes of resuscitation, and the comparative ease with which gum is administered helps to relegate blood, most undeservedly, to a secondary position. Urgent blood transfusion may not have to be done very frequently in civil practice, but it is nevertheless necessary that the theory and methods should be taught in the hospitals, so that house surgeons may be able to carry it out as an emergency procedure. The purpose of the summary in *Medical Science* is to draw attention to the uses of blood transfusion in civil practice, and it is evident from the papers summarised that the chief importance of the procedure in the future is likely to be its use as a therapeutic agent. It has been extensively used in America, notably at the Mayo Clinic, where 1036 transfusions were carried out between Jan. 1st, 1915, and Jan. 1st, 1918, the citrate method being used in the majority of the cases. The evidence as to the results is not yet complete, but there seems to be no doubt that considerable success has attended the therapeutic use of blood. The chief obstacle in the way of blood transfusion in this country is likely to be the provision of suitable blood donors. For therapeutic purposes a relative of the patient could probably be found willing to give blood, but in an emergency there might be some difficulty. The organisation of a hospital does not permit of the use of one of the staff of attendants as a donor, though in a teaching hospital a volunteer could probably be found among the students. Until there has arisen in England a new class of "professional blood donors," each hospital will have to make such independent arrangements as it thinks best.

THE NEW HOSPITAL FOR TROPICAL DISEASES IN LONDON.

IT is expected that the new hospital for tropical diseases, which is to be situated in Endsleigh-gardens, Euston-road, will be ready for patients this month. Roughly speaking, 58 to 60 beds will be available. One floor will be devoted to private patients, including cases from the India Office and Colonial Office, and for them small private single- or double-bedded rooms have been set aside. On another floor general cases will be dealt with, and here there will be two roomy wards, with a few single rooms in addition for special cases. The old tropical hospital at the Albert Docks, a branch of the Seamen's Hospital at Greenwich, is to be utilised as a source of supply for the new hospital, cases being transferred from there as required by ambulance. The physicians will be Dr. C. W. Daniels and Dr. George C. Low, both old superintendents of the London School of Tropical Medicine and both widely known for their researches and work on tropical medicine. As assistant physician Dr. P. Manson-Bahr has recently been appointed. Such a hospital should prove a great boon to a large class of sufferers from the tropics, because here they can be properly housed, have every attention, and, what is most important, be treated by expert consultant physicians with special knowledge of their diseases.

Running in connexion with the hospital will be the London School of Tropical Medicine under the care of Dr. H. B. Newham as director. Students will thus have the advantage of studying the cases at first hand and will also be trained in the scientific methods required for their diagnosis and treatment. It is expected that there will be a wealth of clinical material available and valuable research work will, we have no doubt, accrue from its study. The easy accessibility of the new building will be one of its chief assets.

ON PASSIVE MOVEMENTS.

IT appears that the majority of recommendations for treatment brought in from their local committees by pensioners are for treatment by "massage and passive movements." How futile would be treatment on these lines were it carried out is indicated by Mr. E. Stanley Brentnall in a brief but important note which we print on p. 198. Not everyone who is possessed of a limb that is not perfect can be benefited by massage or by passive movement. Dr. A. F. Hurst has emphasised the care which must be taken in all physical treatment lest we rub into a patient's mind the conviction of disability while we are trying to rub the disability out of his limb. It seems to be enough in some quarters for a patient to complain of pain or disability to ensure that he shall be recommended for treatment by massage. Valuable though physico-therapeutics have proved to be, they have their limitations, and the amount of time and energy that is expended in futile attempts to perform the impossible is, we fear, not inconsiderable at many clinics for pensioners. When a patient has been recommended by his local committee for treatment, before it commences he should be examined by a physician or surgeon competent to judge whether the treatment recommended is calculated to secure amelioration of the symptoms, and again by an expert in the treatment to be carried out, whose duty it would be to prescribe, in exact detail, the nature of the treatment. Medical referees attached to local war pension committees may not be qualified by experience in physical therapeutics either to prescribe the nature of treatment required by any individual or to judge whether the time has come that physical treatment can no longer be of benefit. Referees without special knowledge should order "treatment by massage for one month." The pensioner should be sent to a clinic for advice and, if necessary, for treatment. The case should then remain in the hands of the expert until he has done all that he can for his patient. Lack of definite instruction is responsible for the administration of much treatment by massage and passive movement which, if not entirely futile, is at best of only secondary importance as compared with active exercises and functional use, while the latter may be withheld if not specifically ordered. Treatment is thus unduly, it may be indefinitely, prolonged. Another point raised by Mr. Brentnall is the danger of passive movement. Of this, as a therapeutic measure, he has very little to say that is good, and much that is bad. Yet the disciples of Lucas-Championnière regard passive movement as an invaluable asset in treatment, and one devoid of danger if properly administered. This sharp divergence of opinion calls urgently for elucidation, for on the solution of the problem rests, in large measure, the whole question of manipulative technique.

SYNTHETIC ALCOHOL, AMMONIA, AND NITRATES.

SYNTHETIC methods are very much in evidence just now, and it is probable that great synthetic triumphs of the utmost importance to the industrial and economic world will be achieved at a quite early date. Only in August last we referred to the suggestions of the Inter-departmental Committee on the Production and Utilisation of Alcohol for Power and Traction Purposes. Those suggestions are evidently materialising, for the Department of Scientific and Industrial Research now announces the appointment of a Power Investigation Officer in accordance with the recommendations of the Inter-departmental Committee. The Fuel Research Board, acting under the Department of Scientific and Industrial Research, proposes to begin by bringing the work already being done, both as regards production and utilisation of alcohol, into proper focus. Sir Frederic Nathan, who has been appointed the Power Investigation Officer, was, before the war, superintendent of the Royal Gunpowder Factory at Waltham Abbey, and later works manager of Messrs. Nobel's explosive factory; he was subsequently appointed as officer in control of alcohol under the Ministry of Munitions during the war. He is now entrusted with the survey of the present position and with making proposals to the Fuel Research Board for such experiment and research as may from time to time appear to be necessary. The Department of Scientific and Industrial Research points out that it is obvious that until a more or less accurate estimate has been made of the possible sources for the production of alcohol within the empire, and until their probable amount and the cost of using them have been ascertained, it would be useless to embark upon research on any extended scale into methods of production or utilisation. The synthetic process of producing alcohol from ethylene extracted from coal-gas was described in an annotation in our issue of August 23rd, 1919.

It is well known that Germany adopted, from sheer necessity, a more or less successful process for the manufacture of nitric acid from the air. This process has been carefully investigated by English and French chemists, and last week a report was issued by the Nitrogen Products Committee (Cmd. 482), which recommends the adoption of the Haber process for the production of ammonia and the subsequent oxidation of this into nitric acid. The output might reach 10,000 tons of the acid, ultimately to be converted into nitrate for agricultural purposes. It was, however, announced in the *Times* of Jan. 17th that this process has been eclipsed by a new French process, the rights of which have been secured for the United Kingdom, South Africa, India, Australia, and New Zealand. Extensive works are to be erected in Cumberland, where there is a plentiful supply of good hydrogen-yielding coal providing the partner for the nitrogen of the air in the formation of ammonia gas (NH_3). By this process it is anticipated that no less than 50,000 tons of sulphate ammonia will be produced. What a remarkable confirmation is this of Sir William Crookes's striking prediction, in his memorable presidential address before the British Association for the Advancement of Science at Bristol in 1898, that sooner or later we should have to go to the air for our ammonia and nitrate supplies, and so maintain the food requirements of the world! It means, too, that the nitrates of Chili are no longer indispensable, besides which the supplies there are rapidly getting exhausted. It is to be hoped that these wonderful developments of synthetic methods will find their application in a world's peace, for nitrogen can obviously serve the activities either of ploughshare or sword.

THE ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND.

IN June, 1914, a meeting of surgeons of Great Britain and Ireland was held at the house of Sir Rickman Godlee in London to consider a suggestion made by Sir Berkeley Moynihan that an association of British surgeons should be formed. The principle was decided in the affirmative, but the outbreak of war put an end for the time to the taking of any practical measures. The opportunities of coöperation and mutual discussion afforded by army service encouraged the promoters of the association to further effort, and at a recent gathering at the Royal College of Surgeons of England, many surgeons being present from all parts of the country, Sir Rickman Godlee set forth the objects of such an association. He spoke of the need which had long been felt by surgeons in the British Isles for meetings at which they could learn each others' methods and discuss informally the many unsettled questions of surgery. In order that discussion might be free and frank it was proposed that no reporters should be present at the meetings, every member being left at liberty to publish his communications as and when he pleased. The *British Journal of Surgery* had been selected as the official organ of the Association. Annual meetings were to be held in different centres, those with medical schools being preferred. Sir George Makins mentioned the pleasure and instruction which he had derived from the provincial visits of the Surgical Section of the Royal Society of Medicine, and after he had spoken the draft of the rules was accepted by the meeting. The private character of the meetings, whatever drawback it may have in other respects, will allow of the presentation of tentative suggestions and the discussion of abuses. Members may enjoy the benefits of mutual criticism, while their ideas and methods are still plastic. Freedom of intercommunication makes for the advancement of science, and is a substantial guarantee against misunderstanding.

MEDICAL APPEAL BOARDS FOR OFFICERS.

MEDICAL Appeal Boards for officers, each consisting of a Deputy Commissioner of Medical Services, as chairman, an appropriate specialist, and a medical assessor, are being established at the regional headquarters of the Ministry of Pensions or at other convenient places within the respective regions. The Ministry announces that these Boards will hear all appeals based on dissatisfaction with the assessment of the degree of disablement. The Medical Appeal Board will also deal with claims based on deterioration of health since the last Board and made within one month of the date of the last Board, such claims being deemed to be based on dissatisfaction with the assessment. Claims in the latter category, made after a month, will be dealt with by special machinery which has been set up for the purpose. The Board will have before it all the relevant medical documents, including proceedings of the previous Board and any medical information which the appellant may furnish, so that it may be in a position to give an authoritative opinion. It will have power to raise, or lower, or confirm an assessment, and the decision will be binding for the currency of the previous award, provided that it will not preclude the review of the assessment during that period, if the officer claims that his condition has become substantially worse since the decision. Officers desiring to appeal or claim a reassessment must communicate direct with the Secretary, Officers' Branch, Ministry of Pensions, Chester Gate Huts, Regent's Park, N.W. 1.

CYSTIC URETHRITIS.

Dr. Maximilian Stern and Dr. I. Sidney Ritter,[1] of the Broad-street Hospital, New York, report the following apparently unique case. The patient was a man, aged 26, who had had gonorrhœal urethritis a year previously, and had been treated locally with solutions of argyrol, protargol, and potassium permanganate. As the discharge still persisted he was sent to hospital for diagnosis and treatment. When seen by the writers the patient had a slight watery urethral discharge, a smear of which showed a few pus cells but no diplococci. On cystoscopic examination the bladder was negative. Bullous lesions were seen just internal to the vesical sphincter. Throughout the posterior urethra there were grape-like clusters of cells, each having its individual blood-vessels. Numerous flat, irregular cysts were seen along the pendulous portion of the urethra up to the meatus, with an occasional small cluster of cysts resembling those found in the posterior urethra. The gelatinous contents of the cysts were easily expressed by the cystoscope, after which they presented the appearance of small tendrils, each with a red streak through its centre, indicating the presence of a distinct blood-vessel. The case was treated by fulguration three times at fortnightly intervals, together with instillations of 5 per cent. argyrol three times a week. Two weeks after the third fulguration no lesions could be found throughout the urethra.

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[1] The Urologic and Cutaneous Review, December, 1919.

THE LOCAL DISTRIBUTION OF MILK.

THE extension of the powers of local authorities to supply milk to children and to nursing mothers has been rapid. The latest step is the revocation of the Milk (Mothers and Children) Order, 1918, and the substitution of another Order which contains important provisions. Local authorities are now empowered to supply milk free or at less than cost price not merely in necessitous cases, but also where such a supply is deemed necessary because of the high retail price of milk in any area. While the Ministry of Health will supply the necessary funds under both conditions, the local authorities are reminded that a distinction must be made in their accounts between milk supplied to necessitous cases, under the Maternity and Child Welfare Act, 1918, and that supplied under the powers conferred on them by this new Order. The expression "milk" will be taken to include any preparation of milk prescribed by the medical officer of health or medical officer of a maternity and child-welfare centre, working in coöperation with the local authority. The addition of a maximum scale of quantity of milk to be ordered will be welcomed as an indication to prescribers. Children under 18 months may be ordered up to one and a half pints daily, between 18 months and 5 years one pint daily, while nursing and expectant mothers are left to the discretion of the medical officer certifying their need. Local authorities are urged by the Ministry of Health to extend their arrangements for the supply of milk under the Acts and to make known in their districts the local facilities provided.

A SUPPLEMENT [Cmd. 462. Price 1*s.* 3*d.*] has been issued to the forty-eighth (and last) annual report of the Local Government Board, containing the report of the medical department for the year 1918 with observations extending down to the end of June, 1919, when the Board ceased to exist. The supplement is mainly concerned with the records of certain infectious ailments, the progress of work for the prevention of venereal disease and tuberculosis, and that in connexion with maternity and child welfare, food inspection, and port sanitary administration.

A DRAFT scheme has been prepared by which the British Red Cross Society and Order of St. John of Jerusalem may be able to come to the immediate assistance of the voluntary hospitals, whose financial position, as a whole, has become critical. A conference will be held, under the auspices of the British Hospitals' Association, at St. Thomas's Hospital, to-day, Friday, Jan. 23rd, at 3 P.M., presided over by Mr. Wade Deacon, chairman of the Liverpool Royal Infirmary. Sir Arthur Stanley, chairman of the Joint War Committee of the Society and the Order, will submit the scheme, which is aimed at relieving the present difficulties of the hospitals.

MEDICAL PRACTICE IN BELGIUM DURING THE GERMAN INVASION.

(FROM OUR SPECIAL COMMISSIONER.)

I.

Dr. Pechère's statement to the Belgian Doctors' and Pharmacists' Relief Fund, published in THE LANCET of Dec. 20th last, justly evoked a profound and sympathetic emotion in this country, and represented, I know, the feelings of his countrymen. Much was said in but few words, and it was all well said; yet a great deal remains unrecorded, which your readers may like to learn from the personal experience which I have had an opportunity of obtaining.

The Story from Within.

Dr. Pechère explained the unavailing attempts that were made to send information over to England. The British subscribed to relieve distress, and the Belgians, in describing this distress, had to give details concerning the massacres of defenceless inhabitants, the pillaging and burning of villages. But the Germans did not intend to have their barbarous conduct thus exposed. They seized the correspondence, including the minutes of the Belgian Relief Committee (Comptes Rendus de l'Aide et Protection aux Médecins et Pharmaciens Sinistrés). Of course, before deciding what relief should be sent it was necessary to show why the relief was wanted. This is just what the Germans would not allow. The British doctors and pharmacists on their side, receiving no news, might have sent less help, but fortunately the British Belgian Doctors' and Pharmacists' Relief Fund, obtaining information from refugees, and having sympathetic foresight, took the responsibility of saying that all possible assistance *must* be wanted. And they trusted to fair distribution of anything that could be sent to Belgian organisers. Fortunately, after a while the Belgian doctors and pharmacists managed to get into touch with Mr. Hoover, who was rendering such magnificent service in organising the distribution of food sent from America. When Mr. Hoover heard what had occurred he contrived to forward information to England. The relief funds organised by the Belgians at the earliest moment for their suffering colleagues had been reduced to a very low ebb. At one moment there was not more than 10,000 francs available, whatever the emergency. When the British sympathisers at last heard from unimpeachable authority what was happening, the cheque of the Relief Fund came regularly to the Committee sitting in Brussels. The much-needed and great work of relief was successfully carried forward, at least whenever those who suffered could be reached. This was not always a simple matter. There was the German étappen or zone of communications and what was known as the fire region. There no correspondence whatsoever was allowed, no letters could be sent, no visits paid to the unfortunate inhabitants. To live near the fighting line or the road of the military services meant exile from all the rest of the world. Therefore, some of the relief in money was reserved for those whom it would only be possible to help at some unknown future time. This was a wise precaution, for since the evacuation of Belgium by the Germany army new and very distressful cases have been discovered.

The Terrors of Enemy Occupation.

Among the many victims there are the widows and families of the doctors and pharmacists who were brutally shot, of others who met an honourable death on the field of battle, and of others who died prematurely because of the awful strain and the insufficient food. In common with many of the outraged and oppressed inhabitants, medical men and pharmacists suffered from nervous tension. They were never safe. Anywhere, and at any time, day or night, they might be seized, or soldiers might enter their houses, ransack sitting and bedrooms, open cupboards, drawers, desks, and boxes. After having reduced everything in the house to a state of indescribable disorder they would go off, unfailingly with some rude parting jest. To show any resentment was to risk imprisonment, for on the slightest provocation the soldiers had the injunction to arrest whomsoever they pleased, and they, for the most part, executed their revolting work with alacrity. No papers and no property were safe. Much loss was experienced, not merely from actual destruction and pillage, but also because the searchers threw records and papers into hopeless disorder. This was notably the case at the town halls, municipal buildings, and administrative offices, but medical records of public and private work shared a similar ruthless fate.

The Work of Self-help in Belgium.

To help victimised members of the medical and pharmaceutical professions the Belgian doctors and pharmacists at the commencement of the war managed to raise at once some 50,000 francs amongst themselves. The medical clubs gave up all their funds, and this sum was augmented to 180,000 francs. The Belgian Ambassador at Rome received 25,000 francs from the Italian doctors, and the American doctors also sent some money. By a terrible tragedy much of this last relief was lost, for, as all remember with the deepest sympathy, the wife of Dr. Antoine Depage was drowned on the *Lusitania* when returning from America, where she had collected large sums on behalf of the Belgian Red Cross and medical services. But the total of money received, added to the British donations from doctors and pharmacists received through the Belgian Relief Fund—this last amounting in all to £27,000—supplied the means of giving help to 140 families of the two professions in their urgent need, while building up a reserve that has proved to be of the greatest value.

It is, however, very important to bear in mind that the money by itself could never have achieved so much had it not been for the admirable spirit of organisation prevailing throughout the Belgian medical and pharmaceutical profession. Speaking now of the medical profession, the Belgians have been among the first people in Europe in arriving at a system of organisation, and of this I may speak from personal knowledge. Under the heading of "The Battle of the Clubs," as far back as August 24th, 1895, I described, in these columns, how out of 450 medical practitioners established in Brussels 430 were paying members of the local Collège des Médecins, which is practically a medical syndicate of unions. Since then I have travelled all over Great Britain and many continental countries, describing the sort of organisations which medical practitioners have built up to defend and promote their professional and economic interests. The altered constitution of the British Medical Association and the National Insurance legislation, introducing panel practice, had as one of their common objects the removal of the abuses which I then described; but in those days, whenever I returned to Belgium, there was always some fresh and encouraging development, showing, to my mind, that the Belgians were more alert than the British in taking practical steps to help themselves and to realise professional unity. But to-day, after this terrible war, it was with much apprehension that I landed once more in Belgium. How could such a delicate organism as a professional union survive the shock of an invasion and long years of military occupation and oppression? The result has been just the contrary to what it was so natural to anticipate. No more emphatic vindication of the principle of professional coöperation could possibly be supplied than the fact that the Belgian Medical Union has not only survived the invasion, but, under this great strain and trial, has become stronger and more closely united than at any previous period.

Professional Union in Belgium.

Dr. Pechère, President of the Belgian National Relief Committee, Dr. Herman, President of the Belgian Medical Federation, and Dr. Antoine Depage, in welcoming me to Brussels, were able to explain joyfully that the war had drawn the medical profession closer together. The greater the difficulties of existence, the more the members of the profession had felt, and were feeling, the need of mutual support. Actually there were about 4000 medical practitioners in Belgium; more than 3600 were members, and good stalwart members, of the Belgian Medical Federation of Legally Recognised Professional Unions. (These were the figures given to me, and they show a smaller proportion considerably of medical men to population than prevails in England.) This does not mean an abstract recognition and approval of certain principles. It means the signing of a document that constitutes a legal bond. The statutes appeared officially in the *Moniteur Belge* of March 25th, 1911 (Act No. 182). Six articles define the objects of the Belgian Medical Federation, and the first article says that its purpose is to watch so that the principles of deontology which should govern medical practice are duly observed. Naturally this implies defence, mutual protection in moral and material questions; the exercise of influence upon the Government, so that the profession may harmonise with the Government. The second article deals with conciliation and arbitration in cases of disputes, and the third with the material interests of the profession. This latter stipulates for united action in negotiating with insurance societies and institutions such as benefit clubs, and the establishment of a minimum medical tariff. In a word, all the principal economic problems are involved.

When a question arises that is of sufficient importance, it can be submitted to all the unions, and what might be qualified as a national verdict is obtained. There are 40 medical unions, federated into one National Union, with headquarters at Brussels. Every local union can send a delegate to Brussels. If it has more than 50 members it can send two delegates, and three delegates if there are more than 100 members. According to law, dating from 1899, these societies have the right to buy and own property, and they may take any name they please. In this respect it is curious to note that the newer bodies adopt the word "syndicat." Therefore we have Le Syndicat Médical de Verviers, Le Syndicat Médical du Centre, &c., thus seeming to assimilate the claims of intellectual labour with the other forms of labour, and recognising the need of united action for the one as for the other. In any case, it was this spirit of organisation, of association, and of mutual support, taught and engendered before the war, that has enabled the Belgian medical profession to stand shoulder to shoulder and survive in spite of the war.

The Results of Extended Coöperation.

Only this faculty of organisation could have saved the previous situation. All the old landmarks were destroyed, the old customs could not be maintained, all the men of military age had disappeared, the factories and workshops were closed, some were destroyed, or the machinery they contained was carried away to Germany. Well-to-do clients found themselves penniless. In large towns many patients were able to continue paying their medical attendants, but in the country this was rarely possible. Therefore, what was done in former times for the poorer sections of the population had now to be extended to 600,000 families. Counting an average of four to a family, this meant two and a half million persons, or a third of the entire population of Belgium. For all these people the National Committee organised a system of medical and pharmaceutical help, but this would have been quite impossible had it not been for the assistance of the members of the medical unions. Nor would mere goodwill and a general desire to help have sufficed. A technical, practical experience of the working of what in England is often called the club system was necessary. Yet there was a great difference, a delicate complication needing much tact and kindly feeling. It was absolutely necessary to give help—money, food, clothes, just the minimum required to sustain life—to persons who had been in a good position, who were temporary war victims, and who, above all, should be spared needless social degradation.

The first principle set down was that each family, however poor, should keep their own doctor if he was still on the spot and willing to attend. The National Committee would give him not payment, but an indemnity; and this was done on the basis, at first, of 6 francs a year. In the course of time the allowance was raised to 9 francs, and is now 12 francs a year. This system of wholesale medical insurance proved a double blessing; it not only saved the patient, but in many cases it also saved the medical practitioner. As most men of the military age are just those who are best able to pay medical fees, the medical practitioner found that most of his paying patients had been compelled to fly on the approach of the invaders. But his position was saved when the National Committee paid him from 6 to 12 francs per annum for every family on his list.

(To be concluded.)

A STATE MEDICAL SERVICE:

A DEBATE BEFORE THE MARYLEBONE BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

ON Jan. 16th, at the Rooms of the Medical Society of London, Chandos-street, W., at a meeting of the Marylebone branch of the British Medical Association, a discussion took place on the Future of the Medical Profession under a Salaried Whole-time State Medical Service. Dr. C. O. **HAWTHORNE**, who presided, said that such a discussion was appropriate to the day and hour, for circumstances had compelled the consideration, or rather the reconsideration, of the form and fashion in which the medical profession could best discharge its responsibilities as the director and promoter of public health. Some changes in this direction had already occurred, and other changes were on the horizon. One of the changes proposed by certain members of the profession who had given considerable attention and study to the issue was that no satisfactory position would be attained until the Government established a whole-time State Medical Service corresponding to other public services in the country.

Professor **BENJAMIN MOORE**, who opened the discussion in support of the formation of a State Medical Service, said that underlying the whole question was the advance which medical science and the medical profession had made in relation to the health of the country. If national medical service was going to be bureaucratically administered, the medical profession being the paid servants, he would have none of it. It was quite evident that some coördination would be brought into medical practice and concerted action was necessary to prevent the introduction of a lay bureaucracy. What he had in his mind was a system something on the lines of the old guilds, the management of which would be in the hands of the members of the profession. He drew a picture of the low standard of health among the working people generally, remarking that if the medical profession would get at it they must go forth and seek it. The public conscience had been more than merely aroused. The question of expense and of other matters in connexion with the coördination of a system could only be approached in a broad way, and the best way was by a salaried service. In order to attract the best brains in the country the service of the doctors must be as well paid as was the legal profession. The working of bureaucratic systems did not prove that nationalisation was wrong, because the country had not yet learned how to get the best out of such systems.

Sir **WILMOT HERRINGHAM**, opposing the idea of a State Medical Service, said that the scheme proposed was the dimmest that had ever been laid before any body of men on a serious subject. What had been said was that the profession must not wait for patients to come to it till they are ill, or think they are ill, but that the profession must go out to every house in the country to find out who are ill, and that the only way to do so was to have a salaried service, with, of course, £1000 a year. The Government would offer precisely the same pay as it did to other public services. To have to be continually working under an authority was a very strong argument against the proposal. Discipline such as prevailed in the army was not applicable to a progressive profession such as the medical. He thought that public service did, however much the people at the top might desire to prevent it, militate against improvements, against originality, and against enterprise. When Professor Moore said that he aimed at something which was not to be bureaucratic control, and that the whole thing must be taken into the hands of the profession, and that the first thing to be obtained was an agreement on the part of every medical man in the country to carry out a great scheme of this kind—then he said what all have asked for when they want some vast change in the medical profession. But they have failed to get coöperation. He did not think for one moment the medical profession would be able to get complete control of any State organisation. Health matters at the present time were regulated by the local health authorities, the doctors being an advisory body, and the managers lay people as they always would be. It was important to consider what ought to be done to improve the public health, but a scheme of this kind was not wanted and would not improve public health. Larger hospital accommodation was wanted, in some places especially, maternity accommodation, proper facilities for consultations, and better communication between the doctor who is looking after the case and the doctor who treats the case when in hospital. Also better pathological facilities were required, and here, as such service could not be paid by fees, there could be a whole-time service paid, and adequately, by the State.

Dr. B. F. **HARTZHORNE** said that under a State Medical Service the medical man who had gained a position by his own industry would lose his independence.

Dr. R. **FIELDING-OULD** said that when a man became a State servant he lost the psychical interest between himself and patient and became a machine.

Sir **WATSON CHEYNE**, M.P., said that with regard to prospective legislation he was looking at it from the State point of view as well as from that of the doctor, but so far he had heard no arguments to convince him that the community would benefit by a State Medical Service for treating patients, though it would have an advantage so far as sanitary service was concerned.

Dr. A. G. **AULD** said that while acting as tuberculosis officer he had seen lives lost owing to wrong diagnosis by panel doctors. The remedy was a house-to-house visitation, such as coincided with Professor Moore's recommendation.

Dr. **ALEXANDER BLACKHALL-MORISON** pointed out the good work that had been done in the past by collaboration among medical men before State legislation had been thought of, in illustration of which he pointed to the picture of the founders of the Medical Society of London which adorned the room.

Mr. C. A. **PARKER** questioned whether the system of private practice which had been going on for years had produced the best results. He did not believe the health of the country would be improved until we had a system under which everyone could get adequate medical relief, the middle class as well as the poor.

Dr. **BEDDOES** protested against the introduction of a bureaucratic system.

Professor **MOORE**, in his reply, referred his audience to details which were published by himself and others in THE LANCET about a year ago.[1]

Sir **WILMOT HERRINGHAM**, who also replied, said that while there was a great deal of disease in the country which the medical profession had not been able to stamp out, it did not follow that a whole-time State Medical Service would meet the case.

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[1] THE LANCET, 1918, ii., 85.

THE LATE MR. E. F. H. BURROUGHS.—Ephraim Frederick Hastings Burroughs, L.R.C.S. Irel., L.A.H. Dub., died recently at his residence at Clifton, in his seventy-fourth year. The deceased, who was a member of an old Bristol family, had practised for many years in Clifton, where he was highly respected.

IMPERIAL WAR MUSEUM: THE NATION'S WAR PAINTINGS.

THE exhibition of war paintings now being held at the Royal Academy of Arts, Burlington House, is of the greatest interest, and we regret to learn that it will close at the end of this month. It follows that any who wish to take the advice we offer, and to see this remarkable collection, will have to act in the course of the next few days.

The exhibition includes the larger portion of the valuable collection of war pictures acquired, whether as gifts or purchases, by the authorities of the Imperial War Museum and by the Ministry of Information. A certain number of important paintings and drawings that have been secured for the nation, including a hundred by Sir William Orpen, are still in America. The collection of portraits, we learn, is by no means complete, and, as it is hoped to add considerably to the series in the future, we suggest that the medical profession counted for something in this war, and that there are at least six medical men, connected in the most distinguished manner with our undertakings on various fronts, whose portraits should certainly be included in any national record.

There is one reason why medical men should go to this exhibition themselves, and should urge the large public whom they influence to go there also—the pictures are perfectly frank: medical men, one of whose greatest difficulties it is to get down to essentials and to eliminate the unimportant, will appreciate the spirit. The work has been constructed from the bottom on the only foundation that can be solid: the fact that the artist's special view is not always the view which the spectator thinks should have been taken; the fact that one painter's accomplishment is indicated by exactly that precision which is wanting in the work of another; and, indeed, the fact that some of the exhibitors are better masters of their medium than others—none of these things have any bearing on the case. The pictures are evidence given by witnesses who desire to tell the truth. There are witnesses who bear better testimony than others, but there is no truthful witness who does not stand beyond comparison above him who palters with fact, refines with issues, or loses his essential points in intruding details.

In the first gallery two pictures (9 and 32), both by Sir William Orpen, depict mines at La Boisselle. It is not easy to guess the scale in these pictures, yet the medical significance of the second canvas (32) depends upon remembering that the interior of this "small mine" is about 80 yards across, so that the crevices depicted are proportionately deep, accounting for the long period during which the caverns were dangerous to life from contained gases. In this gallery note also Mr. Francis Dodd's "Interrogation" (29, referred to later) and Mr. C. R. W. Nevinson's convincing picture (39) "The Road from Arras to Bapaume." In Gallery II., Mr. Wilson Steer's "Dover Harbour, 1918" (54) has the accomplishment we should expect from a painter of international fame. It is an achievement that this apparently effortless piece of beauty should hold the eye in a room where more violent appeals are made. Here Mr. John Nash's "Deserted Trench" (48) brings the right feeling of horror. It is a strong large picture, painted small, and the drawing of the huddled bodies, which is sure, tells us that medical aid in these situations was seldom of use.

In Gallery III. is the picture which has been recognised by the public as the most important one in the whole collection, and we find in Mr. Sargent's "Gassed" (84) a perfect example of frankness. The episode is narrated without embellishment or concealment; it occurred on the Arras-Doulens road during the final advance of the Guards in August, 1918. The artist, learning that a large number of gassed cases were being brought to a Corps Dressing Station, drove there at once with a brother painter and actually saw the frieze of blinded men as he has depicted them, walking in single file, each with his hand on the shoulder of him in front, to receive attention for sudden blindness. The picture is bathed in a beautiful evening light, and its tragedy is heightened by the fact that Mr. Sargent put into the background, to be seen in the intervals of the suffering figures, a game of football which was actually proceeding close to the dressing station, among a merry group of soldiers. The great artist makes the great picture by telling the truth in splendid manner. There was such an evening, and the sufferers suffered, and the players played, just as they are depicted. Pathos is gained by the merriment, and the decorative beauty attained by pattern and by colour.

In the same gallery we find four other important pictures of medical interest, and they are among the finest achievements in the collection. Professor Henry Tonks has a beautiful canvas, "An Advanced Dressing Station in France" (77), in which the charming buildings and living figures make up a moving scene. The ruins of a town, dramatic in their simplicity, stand against a sky whose blue, flecked with white, is charged with heavy clouds behind the tallest fragments. The rest of the canvas is occupied with medical business. Note-taking and the application of tourniquets, the filing in, as in Mr. Sargent's picture, of the blinded, the bearing of stretchers, the reclining wounded have all given Mr. Tonks material for fine draughtsmanship and display of the technical knowledge which, as a F.R.C.S., he possesses. But neither drawing nor technique is obtruded; it is a whole picture, and a notable one.

The other pictures are by Mr. Stanley Spencer, Mr. Gilbert Spencer, and Mr. Henry Lamb. Of Mr. Stanley Spencer's "Travoys with Wounded at a Dressing Station in Macedonia" (75) the thing just said may be repeated; though crowded with incident it remains one picture. It is a vivid representation of mountain ambulance transport. The front of the picture is occupied by the backs of a row of mules, ascending the mountain abruptly with their burdens. On the plateau is a dressing station. With a license justified by the example of primitive Italians, Mr. G. Spencer, most modern of painters, has removed any structures that might impede our view of the scene, and the story culminates in a distant representation, quite faithful enough, of an operation in full swing. The sense of tug on the part of the animals, and of calm procedure in the station are perfectly rendered.

Mr. Gilbert Spencer's "Ward in a Stationary Hospital at Mount Sinai" (70). The realism is here easily intelligible. The study was made just previous to the first attack on Gaza in April, 1917, and represents the interior of a ward after a convoy has arrived. The patients, medical officer, sister, orderly, and necessary properties are set out so that we can understand the scene. But Mr. Lamb's surprising picture (80) of the effects of a Turkish bombardment upon a column of Irish troops in the Judæan Hills is less obvious. Mr. Lamb is an accomplished painter, who had formerly trained for the medical profession, who won the Military Cross for war services, and passed his medical examinations during the war. He has produced a picture which will delight those who can imagine, and will irritate those who only trust their own impressions without knowing the limitations of those impressions. The way in which the soldiers, surprised by the bombardment, are taking cover under the rocky terraces, is, we feel certain, correctly presented.

In Gallery IV., "Indian Wounded in the Dome at Brighton," by Mr. Douglas Fox-Pitt (112), is clever, and makes us feel that whoever selected the Brighton Pavilion for the shelter of Indian patients was clever also; the patients so fit their environment that the placidity which leads to recovery should have been secured. Medicine is little represented in this room, which contains a remarkable picture by Mr. C. J. Holmes, so well known as the Director of the National Gallery that we are apt to forget his rank as a painter. "A Two-Year-Old Steel Works" (102) is a big piece of work.

In Gallery V. one of Mr. Eric Kennington's canvasses "55 C.C.S., Q.5" (188) is a realistic picture of a casualty clearing station. It is in black and white, and the scene shows a group of patients, not severely ill or dangerously wounded, and many in the recovery stage. In this room we should note also from the anatomical point of view a picture by the same artist, entitled "Infantryman Resting" (225). The way in which the weight of the sitting man is distributed and his body supported by his gun is properly observed. We mention the fact because it is not unusual for the sitting presentments of accomplished artists to wear the appearance of sliding forward out of the frame. Observe in this room, also, the picture by Mr. W. P. Roberts, "An Attack" (228). This record of the capture of the Delville Wood gives a terrible idea of the country in the neighbourhood of the Passchendaele Ridge and of the sufferings of the wounded during the fighting in that area, when it took many hours at night to recover the injured on the battlefield. Alas! a great many in this region perished in the horrible morass. In Gallery VI. "The Doctor" (246), by C. R. W. Nevinson, deserves attention. It is strong, sombre, and rich. The inspection of a head dressing by a medical officer is the main episode, and the mask of suffering worn by the patient shows how near the tragic lies to the comic.

In Gallery VII. a large number of portraits by Mr. Francis Dodd, though not all equally pleasant, mark a high average level of accomplishment; it is in this series that we looked in vain for a protagonist of medicine. Here, also, the same painter has a fascinating picture of a submarine, while a Diesel engine is being repaired (282). The painting was executed while the vessel was submerged; the elaborate engineering work is indicated with force and economy of treatment, the men engaged being drawn with an effectiveness secured in the same concentrated manner. Mr. Dodd is a distinguished painter, for in Gallery I. we noticed a picture by him, "Interrogation" (29), which is one of the best in the collection. There are two British officers, a German prisoner, and a British soldier who brought the captive in. The four faces are a triumph of humorous observation. The intelligence officer is obviously pursuing a routine, but the general is keenly interested in what may be a critical disclosure. The prisoner is of high intellectual type, and aware of the grave issues involved in a situation which frankly amuses the sentry. While the story is thus made clear the picture as a whole is a beautiful and symmetrical thing. Nothing has been added in concession to any idea that it would help the spectator, and, because it is a great picture, nothing of the sort is missed.

This gallery contains also many striking works by Mr. Muirhead Bone, one of which we make bold to pick out for special mention—namely, "Panorama from the Scherpenberg" (311), a beautiful view purely done, and a workmanlike map exposing the conditions of the country. In Gallery VIII. Mr. Gordon's "Action Operating Theatre in a Battleship" (374) and "Burnt and Wounded in a Battleship after Action" (377) will remind us how very high was the percentage of the injuries in the navy due to burning and scorching accidents. In this gallery is a picture, "The St. Quentin Canal" (384), by Mr. Hughes-Stanton, which was painted from the temporary bridge erected across the canal towards Bellicourt. At this spot the canal was crossed by one of the North Midland Divisions of the 4th Army, with the help of rafts, mats, and lifebelts; they stormed the Hindenburg line, and an official dispatch states that so well was the attack executed that the one Division took on this day (Sept. 26th, 1918) over 4000 prisoners and 70 guns. The results of the exploit come out in the dispatch, but to understand its splendour one has only to look at this picture. How it was done physically can just be imagined, but the courage wanted must have been immense.

The medical interest in Gallery IX. is small, though the room includes "Saline Infusion" (429), an incident in a British Red Cross Hospital, by Professor Tonks, and a delightful "Interior of a Hospital Tent" (452), by Mr. Sargent. But the whole room is extremely beautiful, the water-colours by Mr. Sargent, Professor Tonks, Mr. W. Rothenstein, and others being quite delightful. "War Allotments in a London Suburb" (424), by Miss Dorothy Coke; "The Soloveski Monastery" (423), by Professor Tonks; the "Tarpaulin over a Dug-out" (455), by Mr. Sargent; "Via Dolorosa" (488), by Mr. Muirhead Bone may be mentioned, but other tastes will make other selections. Gallery X. is composed of Sir John Lavery's collection. All the pictures in the room were presented by the artist, who, however, was only moved to paint one medical picture, "Wounded at Dover, 1918" (513).

If we have drawn attention to some of the most important pictures from the medical point of view, there are many others with similar appeal that deserve inspection. Therefore we repeat the advice with which we began, and recommend our readers to visit Burlington House on one of the remaining days of the month.

SOME NOTES ON THE RECENT FRENCH CONGRESS OF SURGERY.

(FROM AN OCCASIONAL CORRESPONDENT.)

DURING the Twenty-eighth French Surgical Congress, of which a brief account appeared in THE LANCET of Oct. 18th, 1919 (p. 706), a daily series of operations was arranged, and some of the best French surgeons were seen at work. The list of operations was posted at the Secretariat in the Faculty of Medicine. This year among the surgeons operating were Victor Pauchet, T. De Martel, Pierre Duval, J. L. Faure the gynæcologist, Calot the orthopædic surgeon, Marion, Sebileau, and others representing different specialties.

I followed the work of the first three, and though these notes are belated in date I hope your readers will find them of interest.

Pauchet's Technique for Abdominal Operations.

Victor Pauchet performed over a dozen gastro-intestinal operations, besides others; these included gastro-enterostomies, jejunostomies, and gastrectomies for ulcer and cancer, colectomy, choledochotomy, and an excision of the rectum for cancer.

The following operations may be described:—

Gastrectomy for cancer.—Mesial incision and rapid examination of the tumour with regard to operability.

(1) Separation of the great omentum from the transverse colon by a few touches of the knife. This exsanguine proceeding gives immediate access to the posterior gastric wall and facilitates separation of the stomach from the pancreas. The stripping up of the great omentum exposes the pancreas, leaves behind the colic vessels in the mesocolon, and takes with it any glands below the pylorus, permitting easy ligature of the pancreatic duodenal artery as the dissection is prolonged well to the right over the duodenum.

(2) Freeing of the upper surface of the duodenum and pylorus and ligature of the pyloric artery. Crushing and section of the duodenum on a Mayo's clamp and invagination of the duodenal stump. The stomach is now swung over to the left, a Doyen valve lifts up the liver, and the coronary artery is ligatured as near its origin as possible.

(3) Clearing of the lesser curve. This important step is done by placing a Kocher's forceps half an inch below the coronary ligature. With a knife the arterial pedicle is cut near the forceps, the incision passing right down to the serous coat of the stomach. Traction being made on the forceps with the flat of the knife the tissues are scratched downwards, the lesser curve thus being cleared of its serous coat, vessels, and glands down to the site of section of the stomach three, four, or five fingers-breadth from the tumour.

(4) Placing of a crushing clamp (De Martel's or Mayo's) on the stomach well above the growth and removal by the cautery of the whole diseased area with the glands in each omentum attached to it.

(5) Closure of the crushed gastric stump by a continuous parallel suture over the clamp. Posterior or anterior gastro-enterostomy, the jejunal loop being brought up through the mesocolon and the anastomosis being fixed in the mesocolic opening.

W. J. Mayo once wrote that an operation by Tuffier for removal of an adherent kidney by subcapsular nephrectomy was in itself worth a visit to France. We felt the same might be said of Pauchet's gastrectomy for cancer. We saw him operate on several gastric cancers, and his rapid bloodless technique with its clearness of anatomical detail left the impression that gastrectomy was a comparatively simple proceeding. In his gastro-intestinal work Pauchet chiefly uses straight glovemaker's needles, though in certain places he changed to curved ones. In gastro-enterostomy he uses collargol catgut throughout, fearing gastro-jejunal ulcers from the use of unabsorbable threads; in gastrectomy the serous sutures were of fine linen. Unlike many French surgeons, Pauchet works in fine rubber gloves till the suture of the wall, when he changes quickly into the thick Chaput gloves. Anæsthesia was always spinal, paramedian and local if possible. In some cases these methods were satisfactory, in others ethyl chloride or ether had to be used in addition.

Choledochotomy.—The patient, a fat male, was anæsthetised by spinal anæsthesia, and a long incision made parallel to the right costal margin, and about one inch from it. From the outer part of this incision another led vertically downwards, ending at or below the level of the umbilicus, and three or four inches external thereto. The exposure was admirable in an obviously difficult case. Under the liver the fundus of a shrivelled gall-bladder was barely visible in adhesions. Grasping it with Kocher's forceps the operator cleared the gall-bladder by knife dissection, chiefly from the stomach, in an attempt to define the cystic duct. This, however, proving impracticable, mobilisation of the duodenum was at once commenced by clean dissection with the knife. Gradually the common duct, obviously thickened, became visible. Incision was made into the duct between two Kocher's forceps, bile and biliary mud exuding.

The duct was sounded upwards and downwards with a curved steel urethral bougie, a calculus being struck far down in the duct. Manipulation of the stone pushed it upwards towards the incision, and on extraction it appeared the size of an olive. The duct was drained by a T-shaped tube, which fitted snugly into it; alongside the tube a couple of thin strips of gauze were left, to be removed gradually about the fourth day. The large wound was carefully sutured by thick catgut in the peritoneum and posterior sheath and in the anterior sheath; in addition here and there sutures of fishing gut were inserted. Michel's clips closed the skin.

During the operation, which was rapidly performed and conspicuously free from bleeding, only two intra-abdominal ligatures were placed, one on the round ligament of the liver, the other a single suture in the duct. When asked by a spectator why he left the gall-bladder, Plauchet replied that it was so shrivelled as to be no longer a gall-bladder; its removal was therefore unnecessary and only conducive to hæmorrhage, difficult to control in this case from the difficulty of access to the cystic duct.

Excision of a cancerous rectum.—The patient, a stout male, under spinal anæsthesia, was first placed on his back and a loop of the transverse colon fixed in the wall through an incision in the left rectus at the level of the umbilicus. This was done by slight omental separation, to define clearly the mesocolon on its upper surface, the bowel being slung up by a couple of fishing-gut sutures, passing through the mesocolon, each suture being tied on the skin, mattress fashion, on its own side. The bowel was to be opened 48 hours later. The patient was now turned on his face in the reverse Trendelenburg position, the buttocks being so raised that operator and assistant had to stand on small stools. The anus was closed by a silk suture and the anal canal dissected till about 3 inches were displayed. An incision was then made in the middle line over the sacrum and coccyx, stopping short of the perianal incision. The coccyx was removed and from the space thus left a pair of forceps was passed downwards and gripped the anal ligature. Traction on the ligature drew up the dissected anal canal into the space left by removal of the coccyx and careful dissection of the bowel from the prostate was begun, the gland soon showing bare at the bottom of the wound. Freed from the prostate, the bowel was rapidly detached with the perirectal fat from the sacral hollow; the peritoneum was opened and the lateral vessels on the rectum secured. A ligature was then placed round the bowel well above the growth, which was cut away, and the bowel was brought down and stitched to the skin at the anus. To avoid tension some lateral stitches fixed it to the sides of the cavity into which a couple of drainage-tubes and a mesh of gauze were placed, the large wound being reduced by a few separate fishing gut sutures. The anæsthesia of this operation was complete and its performance was marked by the absence of bleeding.

De Martel's Inventions and Methods.

T. De Martel had a list of over two dozen cases for operation, including craniectomies, laminectomies, abdominal and rectal surgery. His book on "Injuries of the Skull," published in the Horizon series, has already been translated into English. De Martel is the inventor of a craniotome and an ingenious crushing clamp for the stomach. In one morning he performed two appendicectomies, resection of a cancerous breast, removal of an ovarian cyst, gastrectomy for cancer, and craniectomy as a decompression operation.

In appendicectomy he simply ligatures the appendix stump after cutting it through with the cautery and drops it back into the abdomen without invagination. In a case of cholecystectomy in a very fat woman, he used Perthe's incision, removing the enlarged gall-bladder rapidly from below upwards. A rubber drain was placed near the stump of the cystic duct, but not fastened to it. Beside the drain a couple of gauze meshes were put in and the wall closed by one layer of through-and-through sutures of aluminium-bronze wire, a method of suture which in a case like this seemed very insufficient to some of the onlookers. In a case of duodenal ulcer he performed exclusion of the pylorus by cutting across the pyloric antrum. Each end of the gastric section was closed and posterior gastro-enterostomy performed on the upper end. De Martel's craniectomies are anæsthetised by about 5 ounces of ether in oil per rectum, then local anæsthesia by novocaine and adrenalin is used in a very thorough way. The condition of a patient two days after a decompression operation was most satisfactory.

In a case of supposed tumour of the spinal cord a physician first gave a brief history of the case, De Martel also making some remarks on the diagnosis. Laminectomy was performed under ether anæsthesia, but no tumour or collection of liquid was found and the wound was closed, De Martel remarking that the condition must have been an intraspinal lesion. At the close of this operation a girl of 22 walked into the theatre before her less fortunate companion had been wheeled out. She had had laminectomy performed two months previously for a tumour in the spinal canal, and she was obviously in a very satisfactory condition, all paralysis having disappeared.

De Martel has recently published his results in 20 cases of tumours of the cord and its membranes, and in this interesting report the details of technique are fully given.[1] Pauchet and De Martel both speak English, so that English-speaking surgeons can always get information on any point.

Anastomosis by Pierre Duval.

Professor Pierre Duval, operating at the Lariboisière Hospital, performed a choledochotomy, an operation for gastric ulcer, and one for intestinal stasis caused by adhesions.

1. *Choledochotomy.*—Duval explained that the patient, a female, suffered from obstructive jaundice, and that the provisional diagnosis was stone in the common duct. The incision was of the Mayo Robson type; the gall-bladder being cleared of adhesions, cholecystectomy was performed from below upwards. The stone, occupying the junction of the cystic and common ducts, was about 1½ in. long, and was quickly removed. Drainage of the duct was by a soft catheter with a mesh of gauze placed beside it; suture of the wall was

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[1] Bulletins et Mémoires de la Société de Chirurgie, Paris, vol. xlv, No. 2, pp. 511 to 521.

in two layers. At the close of this operation Duval handed round the most curious radiogram of biliary calculi by Beclerc the present writer has ever seen; four to five stones were perfectly visible in the gall-bladder, and lower down and inwards others could be seen in the track of the common duct.

2. *Ulcer of the lesser curve.*—Duval said that a radiogram showed an ulcer in this position and that he intended doing Balfour's cautery operation. A median incision was followed by omental colic separation and exploration of the posterior surface of the stomach showing the ulcer adherent to the liver and pancreas. On attempting mobilisation of the lesser curve the ulcer tore; Duval therefore desisted from further attempts at separation from the liver, and with the cautery simply seared the edges of the large resulting gap. Suture of the gap by some separate catgut sutures with a Reverdin needle was followed by a layer of serous sutures burying the first. He then performed posterior gastro-enterostomy without clamps, and when asked by a spectator what direction he gave to the jejunal loop he replied that it did not matter, as the essential for a successful gastro-enterostomy was a large anastomosis at the lowest part of the stomach near the pylorus. The opening did not appear to be more than one and a half inches long. At the end of the operation Duval explained that he had not wholly done Balfour's operation, which was obvious.

3. *Intestinal anastomosis for post-operative adhesions.*—The patient had a long vertical scar in the left flank, the result of some previous operations. Loops of large bowel were found matted together in the left iliac fossa. The adhesions were separated as far as possible, and as some angulation persisted between the separated loops, Duval performed anastomosis between two loops. He did not use clamps, and sutured the bowel with a fine Reverdin needle, cleaning the cut surface with swabs soaked in ether. He explained that he used this needle even for gastro-intestinal sutures as he was so accustomed to its use. Though a useful instrument in sutures elsewhere, this needle obviously makes a larger hole in the tissues and cannot be manipulated any faster than a straight or conveniently curved intestinal needle used by the fingers.

In connexion with the Congress an interesting exhibition of surgical and electrical instruments was arranged in the hall of the Faculty of Medicine.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Council of the Irish Medical Association.

A QUARTERLY meeting of the Irish Medical Association was held in the Royal College of Surgeons, Dublin, on Jan. 14th, Dr. J. Marshall Day, the President, in the chair. Correspondence was read between the secretary of the Association and the Chief Secretary for Ireland dealing with the difficulties arising out of the Motor Permits Order. The Association had asked for some special consideration in the case of drivers employed by medical men, but the Chief Secretary declined to grant the request. The following resolution was passed unanimously:—

> "The present position regarding the Motor Permits Order seriously interferes with the attendance on sick persons throughout Ireland. The Council of the Irish Medical Association believes that the object of the Order would be best met by a photograph of the driver being affixed to his licence, and requests the Government to adopt this course."

This is the suggestion which has already been put before the authorities by the Traffic Controller for Ireland. A discussion followed concerning the inadequacy of the fees at present paid for examinations for life assurance, and the following resolution was passed:—

> "That the scale of fees for examinations for life assurance shall be as follows: Proposals for £100 and under £500, £1 1s.; £500 and over, £2 2s."

The Council discussed the inadequacy of the remuneration given for attendance on the officers and men of the Royal Irish Constabulary, and a deputation was appointed to wait on the authorities to ask for a reconsideration of the present scale of payments and conditions of service. Discussions took place concerning the working of the Reorganisation Committee and the Irish Public Health Council.

The Royal Academy of Medicine in Ireland and the "Dublin Journal of Medical Science."

The Council of the Royal Academy of Medicine in Ireland has recently acquired the goodwill of the *Dublin Journal of Medical Science* and has decided to make it in future the means of publishing the Transactions of the Academy. Since the formation of the Academy of Medicine in 1882 it has, until 1917, published its Transactions in an annual volume. Since 1917 no issue has appeared. The *Dublin Journal* has a long history. It has reached its 149th volume, and the current issue is No. 576 of the Third Series. With the issue for March it will commence its Fourth Series under its new auspices. The present editor, Sir John W. Moore, has had charge of the journal for nearly 50 years, and much credit is due to him for the high literary standard maintained by the journal and for the determination which has kept it alive through many difficulties. The Council of the Academy has decided to offer the editorship of the journal, when it comes into their hands, to Mr. Arnold K. Henry, F.R.C.S.I.

The Belfast City Council.

At the time before the recent municipal elections there were three medical representatives in the Belfast City Council. Of these, one did not again come forward, and of the other two candidates only one, Dr. J. D. Williamson, was elected.

Jan. 19th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Improving the Indian Medical Service.

CERTAIN proposals of the Government of India were sent home some time ago, although the report of the Medical Services Committee has not yet been finally considered. One of the principal grievances of the officers of the service, as is well known, is the difficulty and uncertainty of obtaining leave or furlough home. It is high time that steps were taken to remedy this grievance, not merely from the paramount necessity of relieving the hardships of a class of officers who have rendered splendid service to Empire, but also from the urgency of the problem presented by the difficulty of recruitment. Since August, 1914, the total number of I.M.S. officers has steadily declined from 775 to 732. On the civil side there are now just over 200 officers on duty as against 507 before the war. There were nearly 200 permanent I.M.S. officers employed overseas, principally in Mesopotamia and Egypt, whose services cannot yet be spared by the military authorities. Now, as has already been stated, the total number of I.M.S. officers is less than the total sanctioned pre-war strength plus the 23½ per cent. study and leave reserve. Quite apart from the increase of this reserve, which, it is anticipated, will be among the contemplated improvements, the military requirements of India, due to revised scale of treatment and to the inclusion of the treatment of departmental followers in Indian station hospitals, will necessitate an increased cadre. Leaving out of consideration the 200 officers now serving overseas, some 150 officers are necessary to make up the shortage. It is plain that if the hundred or so European doctors required by recruitment formula—"two Europeans and one Indian"—are to be found, the attractions of the Indian Medical Service must be greatly increased.

Esher Committee on the Indian Military Services.

Commenting on the work before the commission the leading Indian journal says: "We trust that the committee will give the widest possible interpretation of its instructions; for it is high time that the whole military condition in India was reviewed in the light of the requirements of modern warfare and the calls likely to be made on India in the not distant future to bear her share in the carrying out of a general scheme of Imperial Defence. Is the health and comfort of the soldier looked after as it should be? Are military cantonments and hospitals models of their kind? Is electricity in general use in our military barracks and are water pipes laid down in every large cantonment? Has the motor lorry everywhere replaced the bullock-cart and made mobile columns really mobile? The plea that funds are not available cannot be allowed any longer to stand; we must find the funds to make our army really efficient, even if we have to revise all our ideas as to what is necessary and unnecessary from a military point of view. And here the Esher Committee, if it will but devote itself to discovering a solution to this problem, will confer a real benefit on the Government, army, and people of India."

Anti-plague Measures in Secunderabad.

The laying of the foundation-stone of a rat-proof grain market took place a few days ago in Secunderabad. This is one of the effective measures adopted by local administration to combat plague. The building will cost Rs.1¼ lakhs (£12,000), and will include 27 store-rooms in addition to a handsome façade to be occupied by cloth shops; its location in the centre of the town, close to the general market, will render it convenient in every way to the public and also to the merchants.

Cholera near Calcutta.

A virulent type of cholera is reported to have broken out at the coolie depôt near Calcutta. Four or five cases are being reported daily, and some have proved fatal.

Public Health in Calcutta.

The Governor in Council has decided that the time is ripe for a thorough investigation into the existing organisation of the Public Health Department of the Presidency of Bengal. He desires that the organisation should be examined and that proposals should be made with a view to rendering it adequate to discharge the expanding functions which in the near future must inevitably be assigned to it. The Government has accordingly decided to appoint a committee, consisting of the following gentlemen, to advise upon the whole subject, viz.:—Hon. Mr. C. F. Payne, I.C.S., chairman; Dr. C. A. Bentley, M.B.; Sir L. Rogers, Kt., I.M.S.; Sir Nilratan Sarkar, Kt., M.D.; Nawab Khwaja; His Excellency in Council Muhammad Yusuf Khan Bahadur Rai; Jadu Nath Mazundar Bahadur; Dr. J. W. Tomb; and Mr. S. W. Goode, I.C.S., as whole-time secretary. The Committee has been given broad terms of reference, and it is hoped that a comprehensive scheme will be drawn up.

The Health of Baghdad.

Baghdad is, I learn, at present free from any form of serious disease. Influenza certainly is running its course through the town, but it is not of the dangerous nature from which so many suffered last year. The Civil Hospital is making steady progress, and is daily becoming more and more popular with the population. The ophthalmic section, in particular, is doing valuable work, and in consequence of the results which are effected many Arabs who have previously carefully avoided the "nakim" are bringing their children for treatment. The dental section, which has recently started, has already attained a remarkable degree of popularity.

DEATH OF MR. S. RYAN.—Mr. Simon Ryan, who died suddenly at his residence, Ecclesall-road, Sheffield, on Jan. 5th, received his early medical education at Queen's College, Belfast, and gained the Malcolm exhibition at the Royal Hospital, Belfast, in 1886. Later he went to Edinburgh University, and qualified in 1889 with the Scottish triple qualification, obtaining the Fellowship of the Royal College of Surgeons, Edinburgh, in 1903. Mr. Ryan, who had practised in Sheffield for some 30 years, was 61 years of age, and leaves a widow and two sons, one of whom qualified in 1914 and has assisted his father in practice.

Correspondence.

"Audi alteram partem."

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—The statement of the general secretary of the National Council for Combating Venereal Diseases, published in THE LANCET of Jan. 17th, indicates clearly that the Council is not even now, after so much severe criticism, aware of the actual situation. Between it and the Society for the Prevention of Venereal Disease there is more than a mere difference of opinion as to the best means of controlling venereal disease. Rightly or wrongly, a belief has arisen in many minds that the Council is either very blind to plain evidence, or else is not sincere in the desire, which apparently it now professes, to prevent the spread of venereal disease by any and every means which would be applicable to any other infectious malady. It is necessary to use plain words, for, if the belief be founded on error, then the more plainly it is expressed the more easily it can be rebutted. It is this suspicion which is the controlling factor. It led more than anything else to the foundation of the S.P.V.D. The Council professedly bases its activities on the findings of the Royal Commission of 1913, the Inter-Departmental Committee of 1919, and on Lord Sandhurst's statements in the House of Lords in November last. But surely it is aware of the deep distrust which all these inspired.

The history of the Royal Commission is well known. Seven years before it began its labours two great discoveries had been announced—Ehrlich's discovery of salvarsan and Metchnikoff's discovery that syphilis could be aborted by the early inunction of calomel. The proceedings and Report of the Royal Commission are full of allusions to salvarsan. At the time the Commission completed its labours (1916) 20,000,000 fighting men were being protected by Metchnikoff's discovery, yet during the whole of the proceedings not one question was asked concerning it in its application to man, and in the Report it is alluded to in only a single sentence, which is not even indexed. Some of the medical members of the Commission desired to give prominence to it, but were unable to carry their point.

The Royal Commission expressed the opinion, chiefly on the authority of the late Sir William Osler, that syphilis ranked as about the fourth killing disease, and that about 10 per cent. of the inhabitants of the great towns were actually suffering from it—i.e., about 3,000,000 people in the United Kingdom. Gonorrhœa is five or six times as common. It would appear, therefore, that about every other person, certainly at least every other male, has suffered from venereal disease. For the mitigation of this enormous pestilence the Royal Commission recommended preaching to adults and an extension of treatment by means of salvarsan. In express terms it handed the good work to the National Council. "When we drew up the regulations of the Society (i.e., Council) care was taken to avoid suggesting that means should be taken to prevent infection." But was ever a pestilence stayed by preaching and treatment? Moral lectures given to adults are confessedly futile. Fear of disease does not prevent incontinence, even among medical students, who know so much. An attempt to stay a plague of such dimensions by treating the sick is like trying to empty the Atlantic with a teacup.

The raising of the new armies for the war was accompanied by a vast outbreak of venereal disease among them. We heard little of this epidemic because allusion to it was suppressed for fear of the effect on recruiting, but at one time the Colonial Governments threatened to withdraw their forces unless means were taken to protect them, and in every dominion the main election cry of those who opposed assistance to the mother country was that the young men should not be sent to this cesspool—England. As a consequence, early in 1916—about the time the Royal Commission was issuing its report—the Government was forced to take measures to protect the troops. It is understood that some sort of arrangement was made with "influential people" who opposed "any system of prophylaxis which might be said to afford opportunities for unrestrained vice." Therefore the Government did not supply the troops with "packets" with which they could disinfect themselves immediately after exposure: it established instead "venereal ablution rooms," in which were pails of permanganate lotion and pots of calomel ointment. The men could not disinfect immediately; they had to return to barracks first.

The surgical fevers—septicæmia, gangrene, tetanus, and the rest—are contagious diseases. Every surgeon is of the opinion that whoever delays disinfection for their prevention is a lunatic or a criminal. The venereal diseases are also contagious diseases. They differ from the surgical fevers in that the pathogenic organisms are of exceptional delicacy, in that the time and place of infection may almost always be anticipated, and in that the male organ is so shaped and situated that it is easily disinfected by the individual himself.

Before the war the 1st Battalion Yorkshire Regiment was ordered to Delhi, a hot-bed of venereal disease. The M.O. advised his men to swab themselves immediately after exposure with a solution of permanganate. In four years he saw only six cases of venereal disease, a rate of 1·5 per 1000 per annum. At Mhow venereal disease was reduced to "negligible proportions" by the same means. At Portsmouth an M.O. who had charge of 2000 troops for 28 months also achieved a venereal rate of 1·5. The method spread in the area, and many other M.O.'s obtained similar results. At the local venereal diseases hospital it was found that not one man who had disinfected himself immediately had acquired disease. At Whale Island, the Naval Gunnery School, Surgeon-Commander P. H. Boyden gave bottles of permanganate solution to 496 men, none of whom acquired disease except one who delayed disinfection six hours after exposure. Among the Royal Marine Artillery, who were also taught to disinfect quickly, there were five infections in nine months among nearly 4000 men—a rate approximately of 1·5 per 1000 per annum. Generally speaking, this rate appears to be the normal for troops carefully instructed to practise quick disinfection. Many more instances could be given, but only those which can be exactly verified from official records are quoted.

In 1918 the Government, impressed by the evidence, ordered the provision of prophylactic packets. Protests were immediately raised by those who desired quick disinfection. It was pointed out that it was not "packets," but instruction, that the troops needed. They had disinfectants in abundance. However, whoever was now in charge of the arrangements for preventing disease persisted. After prolonged delay the packets arrived with instructions that they were to be used in the old inefficient way, with delay. Protests were again raised, but were again unheeded. If any officer or man who served during the war be questioned, it will be found in 99 cases out of 100 that he received no instructions whatever. It seemed to the medical officers who were achieving almost perfect results by means of careful instruction and quick disinfection, that someone in authority was inefficient, or else was not desirous of the success of quick disinfection. Meanwhile they had no choice but to persevere and hope that their example would bear fruit later. In the army taken as a whole the venereal rate remained at about 40 per 1000 per annum.

After the end of the war an Inter-Departmental Committee considered the question of the prevention of venereal disease among the civil population, and founded its conclusions mainly on imperfect and ill-considered statistics supplied from the army. Not only did these statistics record the results of incompetent administration, but from the whole results only those were selected which would serve to make the case for quick disinfection appear worst. For example, the high rate of venereal disease among the Australians is mentioned, but nothing is said as to the shocking carelessness of the Administration, nor of the splendid results achieved when care was taken, as, for instance, by Colonel Elgood at Port Said. No stronger condemnation of the administration in the British Army could be penned than this statement of the Inter-Departmental Committee itself: "The returns from individual units appear to show that a reduction is effected only when the medical officer takes a very special interest in the subject and neglects no opportunity of impressing the importance of prompt disinfection on the men under his charge." *Think of this being written of enteric fever or any other disease which was enormously reducing the strength and efficiency of the forces.*

It is not necessary, however, to deal with the Inter-Departmental Committee at length, except to say that indignation at its proceedings led directly to the foundation of the Society for the Prevention of Venereal Disease. It is sufficient to consider the statements of Lord Sandhurst, whose figures are of the same character and derived from the same source as those of the Inter-Departmental Committee. Lord Willoughby de Broke asked for information concerning the Portsmouth area—the area administered by the Assistant Director of Medical Services at Portsmouth—in which careful teaching and quick disinfection had been practised. He wanted to learn about the effects of this quick disinfection, and his object was perfectly understood, if not by Lord Sandhurst, at any rate by the person who supplied him with his figures. Besides the disease contracted by troops resident in the area, much was brought into it during 1919 by drafts, and whole units from elsewhere. Within the area, too, but not in the care of the A.D.M.S., were large bodies of Americans, Colonials, and R.A.F., all of whom had an exceptionally high rate of infection. Lord Sandhurst lumped together all the disease occurring in or imported into the area—which is absolutely the model area for the whole kingdom—and declared that it was two and a half times as high as for the rest of the kingdom. He was immediately called to account, but the Council continues to quote his statements as trustworthy. The remarkable thing is that Lord Sandhurst's arguments make the case even more deadly against the Council than the actual facts. According to him the venereal-rate in the Portsmouth area is about 100 per 1000 per annum. In Portsmouth itself, the only large town in the area, it should be therefore about 150 per 1000 per annum. But among 7000 troops in that town it was reduced to 1·5 per 1000 per annum by quick disinfection and careful teaching. Could anything be more decisive? All that is in this letter and much more has been brought to the attention of the National Council, which still seems to think that the mere opinions of the Royal Commission, the Inter-Departmental Committee, and Lord Sandhurst require only simple quotation, not justification.

We wish to add that, as far as we know, there is no warrant or justification for the secretary of the N.C.C.V.D.'s statement that "the S.P.V.D. consider that immediate self-disinfection is the only measure worthy of consideration," &c., and that the claim made by the N.C.C.V.D. for being the only representatives of those who have had intimate experience of the problems involved in the successful *prevention* of venereal disease is clearly unfounded. For that body is mainly composed of those who have had no experience of immediate disinfection, and have persistently discouraged all trials of it. We are, Sirs, yours faithfully,

H. BRYAN DONKIN.
Jan. 19th, 1920. G. ARCHDALL REID.

THE CAUSATION AND PATHOLOGY OF DIVERTICULITIS.

To the Editor of THE LANCET.

SIR,—In reference to the recent discussion on diverticulitis I think it of interest to point out that I described the diverticula and demonstrated their causation in a paper entitled "The Pathology of Extravasation of Urine" in Guy's Hospital Reports in 1885. The paper was written with the object of showing that the universally accepted theory of the causation of extravasation which was put forward by the then great authority on the subject was absolutely false.

The following was extracted from an article written by Sir Henry Thompson in Holmes's "System of Surgery."

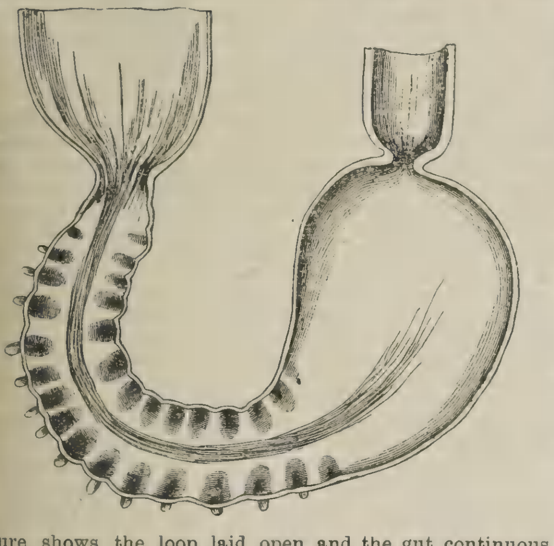
"Extravasation of urine takes place during unrelieved retention by the giving way of the urethra at some point. It is very rare indeed that the bladder itself is ruptured. In either case, however, mechanical distension is not the direct or only cause. Ulceration of the mucous membrane behind the stricture leads to a breach of the urethral walls. The bladder contracting drives the urine with great force into the cellular tissue around, so that it soon reaches the superficial fascia of the scrotum, abdomen, &c."

I do not intend to go into this question in detail here except to state that extravasation results not from any giving way of the wall of an ulcerated urethra, but from the rupture of a periurethral abscess that had burst into the urethra behind the stricture. I was able to demonstrate the truth of this beyond any doubt, as we had at that time a large mortality from extravasation, most of the patients having had a Cock's operation performed on them.

The study of extravasation led me to that of sacculi of the urethra, prostate, bladder, and intestine, and also of aneurysms.

The case of diverticulitis to which I wish especially to call attention illustrates so clearly the manner in which diverticula are formed in the bowel that it requires no further comment from me. The following is an extract from my report on the pathology of the patient's intestine:—

"On opening the sac of the large acquired hernia on the left side, a piece of omentum was found attached to its lowest point. Its upper extremity was free, and presented a cicatricial contraction. Lying on the neck of the sac and adherent to it was the end of a piece of omentum which presented a cicatrix corresponding to that of the lower piece. Occupying the sac was a single loop of large intestine, which with its mesentery was loaded with fat. It was adherent near its neck and posteriorly. The loop of gut measured nearly a foot in length. On laying it open that end which was on the abdominal side of the internal ring was seen to be much dilated, while the proximal end of the loop was very narrow, and presented a double row of sacculi separated by a prominent ridge formed by the band of longitudinal muscle fibres. The figure shows the loop laid open and the gut continuous with either end of the loop. Also the lower row of diverticula, from which the appendices epiploicæ have been removed. Though the diverticula were placed in the appendices epiploicæ their position there was apparently accidental, for the reason that the diverticula, like the appendices, were only seated in the intervals between the longitudinal bands. At the bottom of most of the depressions were small circular openings leading into dilated processes of the mucous membrane covered by a thin layer of the mucous coat. In many of these sacculi the muscle covering appeared to be absent; in character they resembled the diverticula seen in the bladder. The distal half of the loop increased gradually in calibre, losing its sacculated appearance, the prominent ridge of longitudinal fibres becoming indistinct, and then disappearing in the distal extremity of the loop, which was very much dilated. The piece of gut continuous with this in the abdomen opened into the dilated end by a very small constricted orifice, resembling in appearance the œsophageal opening into the stomach. This part of the intestine was contracted and was not unlike the œsophagus, its walls being thick, its calibre small, and its mucous membrane arranged in close longitudinal folds. The contraction of the proximal half of the loop in a transverse and longitudinal direction had resulted in the formation of the prominent longitudinal ridges and the formation of the sacculated appearance. The diverticula of the mucous membrane were evidently produced in the same way, as were the corresponding diverticula in the bladder—namely, by the vigorous contraction of this portion of the loop on its contents, forcing them into the distal half, which on that account became enormously dilated. The very small size of the orifice of communication with gut in the abdomen and its position formed a considerable and a progressively increasing obstacle to the passage of fæces into it."



This man had also a very tight stricture of the urethra, and his hypertrophied bladder presented a large number of diverticula varying in size from a depression to a sacculus as large as a walnut. Many of these vesical diverticula were simply pouches of mucous membrane which projected through the muscle wall, while in others there was a distinct coating of muscle fibre. The fat which was so abundantly present seemed to favour the formation of these herniæ. It is clear from a consideration of the above that the two factors in the development of diverticula are tension and fat, the infection being a natural sequence of stagnation of the contents of the diverticula.

I am, Sir, yours faithfully,

Jan. 18th, 1920. W. ARBUTHNOT LANE.

THE JUSTIFIABILITY OF THERAPEUTIC LYING.

To the Editor of THE LANCET.

SIR,—We have read Dr. C. S. Myers's and Dr. I. G. Cobb's criticism of Dr. Hildred Carlill's treatment of the boy with hysterical sleeping attacks reported in THE LANCET of Dec. 20th, 1919. We both saw the boy several times, and we wish to emphasise the fact that every effort was made to find an underlying cause for his mental state, but without success. It was only after all these measures had been tried and had failed, that Dr. Carlill decided to resort to the procedure which has raised such adverse criticism.

We are convinced that in his conduct of the case Dr. Carlill was actuated solely by the desire to benefit a patient who, as long as he remained uncured, was in danger of meeting an untimely end.

We are, Sir, yours faithfully,
E. A. COCKAYNE,
GEORGE E. S. WARD.

Jan. 20th, 1920.

THE PRIVACY OF VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—With reference to your article "The Privacy of Venereal Clinics," and to other comments which have appeared on Mr. Justice McCardie's ruling as to the giving of evidence by a medical officer of a venereal clinic in regard to a patient who had been treated there, is not the essential feature of the case the fact that it was the patient who called the medical officer to give evidence that she herself had been treated for venereal disease? If this is so, the ruling surely involves no breach of the principle regarding secrecy that is guaranteed at venereal clinics, nor should it tend to destroy the trust of the public in venereal clinics. If medical officers were not allowed to give evidence in such cases it would restrict, to the detriment of the patients, the usefulness of such institutions.

The correctness of the above attitude may perhaps be made more apparent if one considers an analogous case. Imagine that a person had been seen to attend a venereal clinic and was wrongfully accused of having been treated for venereal disease. If such a person were not permitted to avail himself of the evidence of the medical officer of the clinic he would be inferentially placed in a very unfavourable position. A very different principle would be involved if a medical officer were called upon to give evidence by one party that another party had been treated for venereal disease; this, of course, would be a gross breach of professional etiquette, and I imagine that in such a case a medical officer would absolutely refuse, at whatever cost, to consent to what would not only be an infringement of the rules of venereal clinics, but a breach of the honourable traditions of his profession.

I am, Sir, yours faithfully,
A. MEARNS FRASER,
Portsmouth, Jan. 18th, 1920. Medical Officer of Health.

*** Certain daily papers missed the significance of the fact, mentioned in our columns and emphasised by Dr. Mearns Fraser, that the petitioner herself obtained the medical evidence.—ED. L.

THE MEDICAL MAN'S INCOME-TAX.

To the Editor of THE LANCET.

SIR,—In THE LANCET for Oct. 19th, 1918, there appeared an article by Mr. John Burns, W.S., entitled "The Medical Man's Income-tax." It is the most comprehensive and explicit paper on the subject that has appeared in my knowledge, and should be at every medical man's elbow when he makes out his annual return.

Among the abatements cited was one that particularly interested me. In a paragraph under "*War Work*" it was stated that the benefit of the reduced rate of tax, *on the pay only*, is available to all who, in the tax year in question, have served in service of a naval or military character in connexion with the war, for which payment is made out of money provided by Parliament. Having served throughout the war as medical officer in sole charge of a military hospital here, the pay for which appointment was of the nature of consolidated pay, and coming by monthly cheque from Eastern Command Headquarters, it appeared to me that I was, under this regulation, entitled to the service rate on this pay. I accordingly made claim to the reduction by appealing in the first instance to the local surveyor of taxes. That official replied (Oct. 21st, 1918) that he had to inform me that the special rates applicable to army and navy pay are only allowed in the case of men actually on active military or naval service. "The fees received by you are assessable at the ordinary rates of tax." This reply was in such flat contradiction to Mr. Burns's statement, made evidently with complete knowledge of the case, that I lodged a formal protest with the surveyor while I inquired further into the matter.

Through the courtesy of the Editor of THE LANCET I got into communication with Mr. Burns. I pointed out to him the discrepancy between the statements in his article and the dictum of the local surveyor, giving him details of the conditions under which I held the appointment. For the zest with which that gentleman leaped into the conflict which ensued for the next six months with the various Government departments concerned I cannot sufficiently express my admiration and thanks. I doubt not there are a large number of medical men entitled to the same relief as myself. It is with the hope that they will at once put in their claims and be as successful as myself that I am writing this communication. But I hope that they will not forget that they will owe their success entirely to the pertinacity and technical knowledge which Mr. Burns freely gave for the medical profession.

The whole correspondence makes quite interesting reading, but as it would fill many pages of your journal, the course of it can only be indicated. A fight with a Government department is as good a game as Rugby, if you know how to play it. But it is a game only experts can play at. As soon as one department is in danger of being tackled the ball is "passed," and the game kept going in the hope that the opposer will tire. But Mr. Burns proved himself a master at the game. The way in which he stuck to the man with the ball and finally brought him down was delightful to me, the onlooker.

The first move was a letter to the Chancellor of the Exchequer fully setting out my case. The reply was a brief note, not from the Chancellor, but from Somerset House, that the Board of Inland Revenue do not regard "temporary civilian doctors employed at war hospitals" as falling under the War Service Relief. Mr. Burns rejoined that he wrote not to the Board of Inland Revenue but to the Chancellor of the Exchequer. He pointed this out to the Board, and again wrote to the Chancellor requesting him to give the matter his personal consideration (3/12/18). On Dec. 30th Mr. Burns writes, "I have at last got the Chancellor of the Exchequer to write upon the subject, although not very fully. I infer that his sympathies are with you, but he treats it as primarily a matter for the War Office. In that I think he is wrong, and I am saying so. I am, however, writing to the War Office, and I am sending a copy of that letter to the Chancellor." There followed (Dec. 30th, 1918) a long and closely reasoned letter to the War Office, in which the whole case was again set out, as being really representative of that of the profession. Pending a reply to this Mr. Burns drafted a series of questions to be put as soon as Parliament assembled to the departments concerned, asking, among other things, if the Treasury would provide funds for a test case being brought to the High Courts. These were kindly put by Sir W. Watson Cheyne soon after Parliament met, but the answers were non-committal.

The grounds of controversy gradually narrowed to a simple issue. The statute gave privileges to two classes of persons: (1) Those actually serving in the naval or military forces of the Crown; and (2) persons engaged in service of a naval or military character in connexion with the war. In refusing to acknowledge that my work was "service of a naval or military character," it was a fair question to ask for the official view as to what constitutes such service when rendered by one who was *not* a member of the military forces of the Crown. In a letter (War Office, Feb. 7th, 1919), for the first time, the official view was forthcoming. The instance given was "mine-sweeping." This was at once seized on by Mr. Burns as "singularly unhappy," for those engaged in mine-sweeping are separately covered by the same enactment as being for "three months master or member of the crew of any ship or fishing boat." *Ergo*, whatever class (2) means, it cannot mean *that*. Again, in the same letter the War Office postulates "active service," thus, as Mr. Burns points out, putting a gloss upon the statute, making an amendment rather than an interpretation of the statute.

Finally (April 24th, 1919) the War Office regrets that "it is not in a position to assist you further." It proceeds that the proper course for your client to adopt, should he wish to pursue his claim to the reduced service rate of tax, is to appeal to the District Commissioners of Income Tax, the authority appointed by law for the purpose. Accordingly I put in an appeal to the District Commissioners. I was not required to appear before them, the appeal being allowed. I have to-day received a draft for the amount—i.e., the difference between the service rate and the ordinary rate on the three years income from the appointment.

I think there may be many medical men similarly circumstanced to myself affected by this decision. One of my colleagues in this town, who through the war served as medical officer of health to the garrison, and also in medical charge of troops, has already had a similar claim allowed.—I am, Sir, yours faithfully,

Felixstowe, Jan. 17th, 1920. C. G. HAVELL.

BRITISH MANUFACTURE OF INSTRUMENTS OF PRECISION:

A PERTINENT QUESTION.

To the Editor of THE LANCET.

SIR,—May I call the attention of the medical profession to what, in my view, is an undesirable condition of affairs in these days when, as we are led to believe, every effort is being made to capture trade in instruments of precision. Many years ago I obtained from the firm of Carl Zeiss and Co. some hand spectroscopes, on the Browning model. These were, as they should be, furnished with a *wave-length* scale which was most admirably adjusted, and enabled the observer at once to read off the position of any absorption bands seen in the spectrum of the object examined. These spectroscopes having been stolen I was forced to obtain some of British manufacture, and to my great regret found that the old and unscientific, because purely arbitrary, scale was affixed to them. Doubtless it is true that by dint of great pains one can manage to construct a wave-length scale curve to coincide with this old scale; but even then one has perforce to refer to the curve at each observation, which causes a loss of time and, too often, a regrettable expenditure of language.

Is it not possible for our British makers of spectroscopes—even the most eminent of them—to take a leaf out of the book of Zeiss and make *modern* instruments?

I am Sir, yours faithfully,

Calcutta, Dec. 18th, 1919. W. D. SUTHERLAND, M.D.

THE NEED OF OPHTHALMIC PHYSICIANS FOR THE ADVANCEMENT OF OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—My paper on the Need of Ophthalmic Physicians for the Advancement of Ophthalmology[1] was read before the Section of Ophthalmology of the Royal Society of Medicine on Nov. 5th last, and adjourned for discussion to the next meeting, Dec. 3rd. The Section asked that the paper should be printed and circulated. This, however, was subsequently vetoed by the Council on its own responsibility. Recognising the many difficulties which were involved in the change of system advocated in my paper, I had prepared a resolution referring the subject to the Council of the Section for consideration and report, and had given notice to the secretary of the Section a week in advance. At the meeting, however, Mr. Holmes Spicer, the President, informed me that he would rule my motion out of order as it did not concern the affairs of the Section, giving me no time to remodel my motion so as to bring it into line with his ruling or to find a seconder to it.

I venture to protest against that ruling, which appears to me against the interests both of the Section of Ophthalmology and of the Royal Society of Medicine. Surely any subject which the *Section* has power to discuss must be one that its *Council* has power to discuss. The Council has never, to my knowledge, been accustomed to take such a narrow view of its powers, but has included all subjects relating to ophthalmology. And again, if the Royal Society of Medicine has no power to discuss such a subject, where can it be discussed? But, quite apart from the general principle, I hold that the ruling is in opposition to the true interests of the Section, the success of whose meetings depends upon the adequate discussion of the subjects brought before it. Quite a large proportion of the papers and cases brought before the Section are on *medical* subjects, read by ophthalmic surgeons to ophthalmic surgeons. Physicians practically do not attend our Section, and if they did they are not familiar with the ophthalmic point of view. Thus these papers have no chance of enlightened discussion, for what surgeon is going to criticise another surgeon's *medical* opinion? The discussions are therefore shorn of much of their medical interest. Thus, in the interests of the Section I hold it is of vital importance that the physician should be brought into closer touch with ophthalmology, and that it is the duty of the Council to consider what steps should be taken to this end. My suggestion of the appointment of physicians (other than consulting physicians) on the acting staff of ophthalmic hospitals may not be the best remedy. It is open to the Council to suggest a better.

At the last meeting of the Section the President appealed to members for papers, stating that the secretaries had none in hand—clear evidence that all is not well with the Section. For there is a wide field for ophthalmic research, totally unexplored by the physician and only superficially cultivated by the surgeon, which would yield an abundant harvest. The gradual exclusion of the physician from our Section is also shown by the fact that both our secretaries are surgeons. In the mother society—the Ophthalmological—physicians took a large and active part in its formation and management, and up to a few years ago one of the secretaries was always a physician. On all these grounds I consider the position of the physician in relation to ophthalmology to be one which is not only of importance to our science, but of vital interest to the Section of Ophthalmology of the Royal Society of Medicine. For the Council to endeavour to burke the question is a dereliction of its duties.

I append a list of the medical subjects brought before our Section since 1912. It will be noted that four only were introduced by physicians, and in four other cases physicians took part in the discussion.

I am, Sir, yours faithfully,

Jan. 6th, 1920. RAYNER D. BATTEN.

List of Medical Subjects.

Disease in the Pituitary Region. J. B. Lawford. (Dr. Grainger Stewart spoke.)

A Case of Double Tubercular Iritis. Edgar Chatterton.

Glaucoma associated with Venous Congestion. Freeland Fergus.

Optic Neuritis, with Symmetrical Loss of the Lower Part of the Field, associated with Diabetes. M. S. Mayou.

Case of Bi-lateral Temporary Hemianopia; Rapid and Permanent Recovery of Vision after the Administration of Thyroid Extract. H. L. Eason.

Iritis, Rheumatic and Toxæmic. W. M. Beaumont. (Dr. F. G. Thomson spoke.)

Double Detachment of Retina in a boy with Albuminuria. Rayner Batten.

Amaurotic Family Idiocy in an English Child. E. A. Cockayne, M.D., and John Atlee, M.D.

Conical Cornea with Raynaud's Disease. C. Wray.

Retinitis of Pregnancy. J. Herbert Fisher.

Case of Pigmented Degeneration of the Retina associated with Epileptic Fits. F. E. Batten, M.D.

Disturbances of Vision from Cerebral Lesions, with Special Reference to Cortical Representation of the Macula. Colonel Lister and Dr. Gordon Holmes.

(1) Dilated Pupil of Argyll Robertson Type. (2) One-sided Internal Ophthalmoplegia. A. Hugh Thompson.

Neuro-retinitis after Chicken-pox. Leslie Paton.

The Retinal Signs of Arterio-Sclerosis Compared with those Due Simply to Increased Blood Pressure. Bardsley.

Discussion on the Ætiology and Treatment of Iritis. (Even here, *no* physician took part.)

Discussion on Nystagmus, held jointly with the Neurological Section.

Case of Pituitary Tumour. A. W. Ormond.

Pituitary Tumour (Hypopituitarism). L. W. Cargill. (Dr. James Taylor spoke.)

Case of Malignant Disease of the Pituitary Body, with Comments. G. Maxted.

Migraine. J. Herbert Fisher. (Dr. Gordon Holmes and Dr. James Taylor spoke.)

An Unusual Case of Ptosis with Bilateral Ophthalmoplegia Externa. M. L. Hine.

Changes in the Sella Turcica in Association with Leber's Atrophy. Dr. James Taylor.

MIND AND ITS DISORDERS.

To the Editor of THE LANCET.

SIR,—With reference to the pathology of some of the psychoses, and the connexion therewith of the psychoanalytic theories, I venture to suggest an hypothesis which I first brought forward at the annual meeting of the British Medical Association in Aberdeen in 1914. I shall try to put it as briefly as follows: Take, for example, a case of recurrent mania or melancholia. The mental condition is probably the result of a toxæmia of some kind. The hallucinations or delusions present may be analysed, and the nature of these and the reason of their existence explained by psycho-analysis. This procedure cannot, however, be expected to remove the illness which is dependent upon the toxæmia. A further illustration. A subject is given chloroform for a surgical operation. During one of the stages he is delirious. If his remarks are carefully noted and he be subsequently analysed the reason why his babbling took the particular form it did will probably be revealed, but the origin of the condition was the anæsthetic. I do not wish it to be understood that I think this hypothesis is applicable to all the psychoses, but a full discussion would far exceed the limits of a letter. With regard to the review which started this correspondence, I must confess that when I read it I was at first surprised, then saddened. It seemed to me most unfair.

I am, Sir, yours faithfully,

R. H. STEEN.

City of London Mental Hospital, Dartford, Kent,
Jan. 19th, 1920.

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[1] THE LANCET, Nov. 29th, 1919.

THE INSTABILITY OF ROUS-TURNER BLOOD SUSPENSIONS.

To the Editor of THE LANCET.

SIR,—Professor G. Dreyer and Dr. A. D. Gardner, in their letter in your issue of Jan. 10th, state: "We did not use gelatin because its employment would have rendered our results incomparable with those of Douglas and Bigger, who did not make use of it." In our communication[1] we stated that we used "sheep cells washed and stored in the manner described by Rous and Turner." The method which we used was the one recommended by these authors[2] for the preservation of sheep cells. It is described in detail in their paper and, briefly, in the later paper by one of us (J. W. B.)[3] from which Dreyer and Gardner quote. In it gelatin is used in the washing but not in the preserving fluid.

We regret if our desire to make our paper as short as possible caused Professor Dreyer and Dr. Gardner to follow a method of preservation, different from that employed by us in our experiments.

We are, Sir, yours faithfully,
J. S. C. DOUGLAS,
JOSEPH W. BIGGER.

Sheffield, Jan. 15th, 1920.

URBAN VITAL STATISTICS.

(Week ended Jan. 17th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 12·0, 16·2, and 15·8 in the three preceding weeks, fell to 15·6 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·8, against 15·7 per 1000 in the preceding week, while among the remaining towns the rates ranged from 5·7 in Newport (Mon.), 9·0 in Smethwick, and 9·1 in Swansea, to 22·0 in Bootle, Preston, and South Shields, 22·6 in Tynemouth, and 22·8 in Barnsley. The principal epidemic diseases caused 327 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 102 from measles, 75 from diphtheria, 62 from whooping-cough, 59 from infantile diarrhœa, 27 from scarlet fever, and 2 from enteric fever. Measles caused a death-rate of 1·5 in Nottingham, 2·2 in Barnsley, 2·9 in St. Helens, and 4·5 in Bootle; and whooping-cough of 1·3 in Portsmouth, 1·5 in Bootle, 1·6 in Birkenhead, and 2·8 in Gloucester. The 62 deaths from influenza were 11 less than the number in the previous week, and included 19 in London, 7 in Birmingham, and 3 in Oldham. There were 2758 cases of scarlet fever, 1945 of diphtheria, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2809, 1899, and 2 respectively at the end of the previous week. The causes of 39 deaths in the 96 towns were uncertified, of which 6 were registered in Sunderland, 5 in Liverpool, and 4 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had increased from 13·2 to 16·6 in the four preceding weeks, fell to 16·1 per 1000. The 371 deaths in Glasgow corresponded to an annual rate of 17·4 per 1000, and included 4 from diphtheria, 3 from infantile diarrhœa, 2 each from measles and whooping-cough, and 1 each from enteric fever and scarlet fever. The 80 deaths in Edinburgh were equal to a rate of 12·2 per 1000, and included a fatal case each of diphtheria and infantile diarrhœa.

Irish Towns.—The 119 deaths in Dublin corresponded to an annual rate of 15·0, or 2·3 per 1000 below that recorded in the previous week, and included 2 each from whooping-cough and infantile diarrhœa, and 1 each from measles, scarlet fever, and diphtheria. The 166 deaths in Belfast were equal to a rate of 21·0 per 1000, and included 21 from measles, 7 from scarlet fever, 2 each from enteric fever and infantile diarrhœa, and 1 each from whooping-cough and diphtheria.

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[1] THE LANCET, July 13th, 1918.
[2] Journal of Exp. Med., February, 1916.
[3] Journal of Path. and Bact., May, 1919.

STRATTON (CORNWALL) COTTAGE HOSPITAL.—This hospital, which has been enlarged and improved, was formally opened by Sir Croydon Marks, M.P., on Jan. 6th. The hospital was founded in 1866, principally by the exertions of the late Mr. John King, M.R.C.S. An operating-room has been built by subscriptions to commemorate the memory of the late Mr. King, and a new ward containing five beds has been also erected.

Medical News.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part I.—Alexander Thomas Binnie, Sydney Harold Blacker, Arthur Paul Bodman, Ernest Gustave Bradbeer, Ernest Raymond Clutterbuck, Bertram Austin Crook, Bessie Veronica Frith Dawkins, Helen Mary Dixon, Robert Hugh Dummett, Georgina Roberts Dunn, Frank Robert Edbrooke, Norman Jack England, Prosper Gear Evans, Herbert Melhuish Golding, William Arthur Gornall, John Lysaght Griffin, Rowland Clifford Hatcher, Alexander Gordon Heron, Ernest George Hill, John Angell James, Frederick George Jenkins, Doris Ewing Joscelyne, Patrick Cathcart Joscelyne, Edgar Frederick King, Philip Heygate Knowles, Arthur Henry Marshall, John Raymond Nicholson-Lailey, Kenneth Frederic Platt, Arthur Skardon Prowse, Robert Arthur Sammons, Harry Leslie Shepherd, Arthur Erskine Sherwell, Hugh James Heaven Spreadbury, Herbert Taylor, and Robert Elliot Whitby.

Anatomy (completing examination).—Gilbert Bremridge Bush, Constance Lilian Griffiths, George Stenlake Mundy, and Millicent Taylor.

To Dr. R. T. Leiper, professor of helminthology in the University of London, has been awarded by the Senate of Glasgow University the Straits Settlement gold medal for his work in tropical medicine.

INDUSTRIAL RESEARCH AT GIRTON COLLEGE.—Girton College, Cambridge, has received from "A Friend" £10,000, both capital and interest to be applied during the next 20 years for the encouragement of scientific research by women in mathematical, physical, and natural sciences.

THE twenty-second annual dance given by the Middlesex Hospital will be held on Wednesday, Feb. 4th, from 9.45 P.M. to 3 A.M., at the Hyde Park Hotel, Knightsbridge. Tickets (21*s.* each) can be obtained from the honorary secretaries, Dance Committee, Middlesex Hospital.

THE Great Northern Central Hospital has inaugurated an antenatal clinic, which will be held weekly at the out-patient department on Thursdays. An additional session of the gynæcological department will be held on Thursday mornings, as well as on Monday afternoons, as hitherto.

WEST LONDON POST-GRADUATE COLLEGE.—The following lectures will be given on Fridays during the present session in the lecture room of the Post-Graduate College, West London Hospital, Hammersmith, W.

Jan. 23rd, 5 P.M. Professor W. M. Bayliss: Acidosis.
Jan. 30th, 5 P.M. Mr. MacMahon: The Treatment of Functiona and Organic Affections of Voice and Speech.
Feb. 6th, 5 P.M. Dr. R. Hutchison: Functional Dyspepsia.
Feb. 13th, 4.30 P.M. Mr. Hey Groves: Bone Grafting in the Treatment of Fracture.
Feb. 20th, 5 P.M. Dr. A. C. Jordan: The Radiography of Chronic Intestinal Stasis.
Feb. 27th, 5 P.M. Dr. J. S. Risien Russell: A Diagnosis of Affections of the Cerebellum.
March 5th, 5 P.M. Dr. Donald Hood: Some of the Clinical Aspects of Aortic Disease.
March 12th, 5 P.M. Sir A. Pearce Gould: An Old Clinical Lecture New Edition.
March 19th, 5 P.M. Professor Sir Clifford Allbutt: Kinds of Pneumonia.
March 26th, 5 P.M. Sir W. Arbuthnot Lane, Bart.: Intestina Stasis.

These lectures are open without fee to medical practitioners, who will be cordially welcomed.

ROYAL SANITARY INSTITUTE.—Commencing on Feb. 2nd, 6th, and 9th respectively courses of lectures and demonstrations will be given at 90, Buckingham Palace road, London, S.W., for (1) sanitary officers, (2) meat and food inspectors, and (3) women health visitors and child-welfare workers, the lecture hour in all cases being 6 P.M. Among the lectures for the first course, lasting three months, are Dr. R. King Brown, Dr. A. Greenwood, and Dr. Charles Porter, and the fee is £5 for the complete series. The elementary and theoretical part, however, can be attended at a fee of £3 13*s.* 6*d.* and the practical part for £2 2*s.* Dr. W. J Howarth and Dr. King Brown are among the lecturers for the meat inspectors' course, which lasts for two months, the fee being £4 14*s.* 6*d.*, or, including the practical part of the sanitary officers' course, £5 5*s.* Among the lecturers for the health visitors' course are Dr. J. A. H. Brincker, Dr. G. F Buchan, Dr. R. V. Clark, Dr. L. Fairfield, Dr. A. Greenwood Dr. A. B. Kingsford, Dr. E. F. Palgrave, Dr. Charles Porter Dr. Eric Pritchard, Dr. M. G. Thackrah, and Miss K. M Vaughan. The fee for the complete course, which lasts for two months, is £5 5*s.*, or for the first half, dealing with hygiene and sanitation, personal and general, £3 13*s.* 6*d.*, and the second half, dealing with the special care of the mother and child, £2 2*s.*

Dr. S. R. Alexander, who has continuously ccupied the civic chair at Faversham for the past ten ears, has been admitted to the freedom of the borough.

The Lettsomian lectures of the Medical Society f London are to be delivered by Dr. Herbert Spencer, at 1, Chandos-street, London, W., on Feb. 2nd and 16th and March 1st, at 9 P.M. Dr. Spencer has chosen as his subject he Tumours Complicating Pregnancy, Labour, and the Puerperium. Sir D'Arcy Power's annual oration on May 10th will be on "The Rev. John Ward and Medicine."

Royal Institution.—On Tuesday next (Jan. 27th), t 3 o'clock, Professor G. Elliot Smith begins a course of hree lectures at the Royal Institution on the Evolution of Man and the Early History of Civilisation. On Saturday, an. 31st, Sir Frank Watson Dyson, the Astronomer Royal, delivers the first of three lectures on the Astronomical Evidence bearing on Einstein's Theory of Gravitation; and on Thursday, Feb. 5th, Professor A. E. Conrady commences a course of two lectures on Recent Progress in Applied Optics. The Friday evening discourse on Jan. 30th will be delivered by Mr. S. G. Brown on the Gyrostatic Compass, and on Feb. 6th by Sir Walter Raleigh on Landor and the Classic Manner.

Speeding up our Home Spas.—The Harrogate Corporation announce that they have recently appointed a pathologist and bacteriologist as a consultative authority on all that appertains to the healing value of the waters, and they have also secured the services of an analytical chemist on the baths' staff, with the view of keeping the numerous mineral waters of this well known watering-place under constant scientific supervision. This policy is to be welcomed as promising to reduce the empiricisms of balneo-therapeutic practice.

The Cremation Movement.—Since the establishment of the Woking Crematorium in 1885 the number of bodies cremated has increased every year. 1795 cremations took place in 1918, and 2031 in 1919. According to the Cremation Society of England there are over 70 crematoriums in the United States, where the number of incinerations now exceeds 20,000 per annum. The society points out that no increase has been made in the pre-war charge of five guineas for incineration in London and at the majority of the provincial crematoriums, and that apart from the æsthetic and sanitary advantages of cremation, its economic advantage in saving valuable land for other purposes is also of importance to the community. Life-membership of the Cremation Society can be obtained on payment of the sum of £5 5*s*., and entitles the member to free incineration at any crematorium in Great Britain.

Donations and Bequests.—Dame Amy Fanny Tate, widow of the late Sir Henry Tate, has given, among other bequests, £1000 each to Charing Cross Hospital; the Middlesex Hospital, Cancer Ward; the Hahnemann Convalescent Home, Bournemouth; and the Homœopathic Convalescent Home, Eastbourne; £3000 to the British Home for Incurables, Streatham; £4000 to the Queen Victoria Jubilee Institution for Nurses; £500 to the Brixton Nursing Association, Tulse-hill; £300 to the Baldwin Brown Convalescent Home, Herne Bay; £1000 to the Grand Priory of the Order of the Hospital of St. John of Jerusalem; £100 each to the head nurse of the Sir Henry Tate Memorial Home, Tulse-hill, and the other nurses there; £500 to the executors for the doctors, nurses, and attendants at her last illness.—Mr. J. C. Gould, M.P., has given £10,000 to the Cardiff Hospital.—The late Miss R. J. Horlock, of Clifton, Bristol, bequeathed £1000 to the Bristol Royal Hospital for Children to endow a cot.

Health of Birmingham.—The report of Dr. J. Robertson, the medical officer of health, shows that public health in the year 1919 was better than in the preceding year. The birth-rate was still low, being only 20·7 per 1000 as compared with 27·3 in 1913, but higher than in 1917 or 1918. The death-rate was the second lowest ever recorded in Birmingham, this notwithstanding the severe epidemic of influenza. A death-rate of 13·0 is exceedingly low, being 2·2 better than in 1918, and only second to 12·6 recorded in 1917. Infant mortality showed a great improvement. The rate fell to 85 per 1000 births, much lower than in any previous year, and it is gratifying to know that for many years the rate has steadily declined. The incidence of diarrhœa and enteritis was the lowest ever registered in the city, and there were fewer cases of pulmonary tuberculosis reported last year than in any year since 1910. There is no doubt that in Birmingham tuberculosis is showing definite signs of decline, and this, as also the lower infant mortality, is to be attributed to the work of the different agencies employed by the Public Health Committee. The number of cases of pulmonary tuberculosis notified was 2609 as compared with 2905 in 1918 and 3388 in 1916.

Hospital Problems in Birmingham: An Address by Sir Bertrand Dawson.—Hospital matters are attracting much attention in Birmingham. At the end of 1918 practically every hospital found itself with a heavy deficiency. The General Hospital, for example, spent £18,268 more than its income from all sources; the Queen's Hospital, £6113; the General Dispensary, £3539; the Children's Hospital, £3470; and the Women's Hospital, £4663. The balance-sheets for 1919 are not yet published, but it is known that the total deficiency for all the hospitals will approach £50,000. An increase in annual income of this amount will be necessary to carry on the work upon its pre-war basis, but much greater demands are now made upon hospital accommodation. Compared with other towns Birmingham is badly placed in the matter of hospital beds. Whereas Manchester has 2·30 beds per 1000 of the population, Newcastle 2·26, Bristol 2·13, and Wolverhampton 2·12 beds, Birmingham has only 1·14 beds. At least 1000 new beds are required to meet present requirements. There is also great need for new convalescent homes, which would economise the beds in hospital wards. Recently there was formed a hospital council; through its activities overlapping is avoided and the expenses of administration reduced to a minimum.

On Jan. 15th Sir Bertrand Dawson addressed a large meeting of the Birmingham branch of the British Medical Association upon the future of voluntary hospitals. Laymen interested in hospital management were present. Sir Bertrand Dawson pointed out that the proportion of the community needing hospital treatment in the event of sickness was steadily increasing owing to the cost and complexity of modern treatment and the difficulties of domestic service. Not only were our hospitals inadequate in numbers, but they were not performing the right functions. They were called upon to do too much work and the wrong kind of work. In the future hospitals must be more widely distributed and graded. First should come the primary hospitals, set up in both urban and rural areas, where patients would be referred for further treatment, under the care of their own doctors. Nothing was more important than to give doctors the equipment for good work, and that could only come when they had access to institutions for such patients as required the help, organisation, and equipment of a hospital. The central hospitals should be a court of appeal. To them patients would go because their cases demanded more skill and better equipment than could be obtained in the local hospitals, or because they could serve the cause of medical education. At accessory hospitals—e.g., adapted Poor-law infirmaries—there could be treated cases which were not necessarily of great clinical interest, but which were of enormous importance from the economic point of view. Many cases, such as fistulæ, piles, and septic hands could not now be admitted, owing to the fact that beds were required for major operations. From an economic standpoint this was disastrous. From the educational point of view the work of the different hospitals should be coördinated so that they could widen the field for their students. They could in these accessory hospitals give the students the opportunity of instruction in those diseases which the great majority of them needed most when they went into practice. One of the pressing needs for years had been the establishment of a consultants' service under the Insurance Act. That would necessitate fabric, equipment, and clinics. From present evidence it seemed clear that any new hospitals would have to be maintained by public authority. The voluntary hospitals should aim at maintaining their traditions and acquiesce in peaceful penetration by the State rather than absorption. He was sure it would be a bad thing for the community if absorption took place. If the whole cost of curative treatment was provided free it would impose a very great burden on the State. Experience showed that patients did not object to paying. In the primary hospitals there might be a standard rate for public and private wards, which would include the whole of the hospital equipment, nursing, and maintenance, but not medical attendance. For the central hospitals there could also be a standard rate of admission to the public wards. This would include medical treatment, because the patient would have passed from the care of his own doctor to that of the consultant's.

The late Mr. J. T. Chamberlain.—James Thomas Chamberlain, of the Manor House, Great Shelford, near Cambridge, who died on Dec. 26th, 1919, had retired over 24 years ago after 10 years of practice in Nottinghamshire, removing at first to Harston, near Cambridge, and thence to Great Shelford. He was born on March 15th, 1856, in Leicestershire, and qualified L.R.C.P. & S. Edin., 1886, and L.F.P.S. Glasg. in the same year. He was a medallist in midwifery and diseases of women and children. He had done much quiet but effective work in the village where he resided, and was one of the trustees of the Shelford Charities and a guarantor of the Shelford Nursing Institution. He leaves a widow to mourn her loss.

THE King has appointed Colonel A. L. A. Webb, C.B., C.M.G., R.A.M.C., and Surgeon Vice-Admiral Sir William Henry Norman, K.C.B., Knights of Grace of the Order of St. John of Jerusalem in England.

Bretby Hall, Burton-on-Trent, formerly the seat of the Earl of Carnarvon, has just been bought by the Derbyshire County Council for use as a sanatorium for tuberculous cases. It stands in a park of 700 acres, of which some 440 acres, mostly of sandy gravel, have been obtained.

STAMMERING IN SCHOOL CHILDREN IN BATH.—On the recommendation of the school medical officer for Bath, a class for stammering children, in which the Berguand method may be used, is to be formed.

HOSPITAL SUNDAY FUND AT PLYMOUTH.—As a result of the Hospital Sunday collection in Plymouth, which was observed in October last, the sum of £750 has been received for the South Devon and East Cornwall Hospital, compared with £627 in 1918.

PRESENTATION TO A MEDICAL MAN.—Dr. A. E. Larking, J.P., who has retired after 13 years' residence in Buckingham, was recently presented by over 700 patients and friends with an album containing their names, together with an illuminated address and £50.

DIDWORTHY SANATORIUM, DARTMOOR.—This institution has received a grant of £250 from the King Edward's Hospital Fund for London, in consideration of which ten beds will be reserved for the use of certain London hospitals during 1920.

A LONG APPOINTMENT.—At the last meeting of the Liskeard (Cornwall) board of guardians Mr. W. Nettle, J.P., resigned the post of medical officer to the workhouse and No. 1 district, after nearly 46 years' service. The resignation was accepted with regret, and several of the guardians alluded to Mr. Nettle's valuable services.

DEATH OF DR. A. N. LEDINGHAM.—Alexander Napier Ledingham, who died at his residence in Bayswater from heart failure on Jan. 13th, studied medicine at Glasgow University and at University College, London. He graduated M.B., C.M. at Glasgow in 1880 and five years later the F.R.F.P.S. Glasgow. In 1891 he obtained the D.P.H. of the English Conjoint Board. Dr. Ledingham was surgeon to the British India Steam Navigation Company and superintendent of the Queensland Government Emigration Service. Formerly he was resident surgeon to the Glasgow Maternity Hospital and to the Glasgow Royal Infirmary.

NURSES REGISTRATION (SCOTLAND) ACT, 1919.—The Scottish Board of Health are taking steps towards the constitution of the General Nursing Council for Scotland established by the Nursing Registration (Scotland) Act, 1919. On the first constitution of the Council 13 of the 15 persons composing the council are to be appointed by the Scottish Board of Health. Four are to be appointed after consultation with persons and bodies having special knowledge and experience of training schools for nurses, of the work of matrons of hospitals, of general and special nursing services and of general and special medical practice, and nine of the persons to be appointed by the Board of Health must be, or must have been at some time, nurses actually engaged in rendering services in direct connexion with the nursing of the sick. The Board, anxious that the new council should be representative, invite suggestions for membership of the council, but all recommendations should be accompanied by a statement of the special qualifications and experience of the persons suggested.

THE LATE DR. H. W. DARRELL.—By the death of Harrington Wyndham Darrell, who died on Jan. 10th from pleurisy and pneumonia at the age of 56, a well-known figure is removed from Norwich medical circles. He was born at Devonshire, Bermuda, and educated at the University of Toronto, where he obtained his M.D. degree. He also studied at the London Hospital, qualified as L.R.C.P. Lond., and settled in Norwich about 35 years ago. Dr. Darrell built up a large practice, which included many panel patients. He held the appointments of Poor-law medical officer, and surgeon-accoucheur to the Norwich Lying-in Charity. A Conservative and a keen tariff reformer, he was for many years a member of the Norwich City Council. He was a recognised expert on horses, his stud of trotting horses and ponies being well known locally; he was also a member of the Norfolk and Norwich Kennel Club, and possessed a variety of large and small dogs. Ornithology was also one of his hobbies, and his special study of foreign birds brought him some general recognition as an authority on this subject. As might reasonably be expected, a man of such varied interests was very popular, and his funeral was largely attended.

The Services.

ARMY MEDICAL SERVICE.

Major-Gen. Sir H. N. Thompson, K.C.M.G., is placed on the half-pay list.

Temp. Col. C. M. Wenyon, C.M.G., relinquishes his commission and retains the rank of Colonel.

Col. F. W. Begbie, C.B.E., retires on retired pay.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors J. H. R. Winder and R. W. D. Leslie; Capt. E. W. Wade; Temp. Capt. R. Jamison (on ceasing to be specially employed).

Capts. W. K. Campbell, J. F. Bourke, A. Jackson, and Temp. Capts. R. Nichol, J. Porter, W. Brown relinquish the acting rank of Major.

Temp. Capt. (acting Major) D. O. Riddel relinquishes the pay and allowances of his acting rank.

J. A. Martin and J. A. Cowan to be temporary Captains.

Temporary Lieutenants to be temporary Captains: P. Johnson, W. L. Young, J. H. Rodgers, C. K. T. Hewson, P. P. Galea, F. C. S. Bradbury, H. G. Watters, H. H. McClelland.

Officers relinquishing their commissions:—Temp. Major F. C. Purser (and retains the rank of Major); Bt. Major S. P. Hodkinson (retains the Brevet rank of Major); Temp. Capt. A. Peden. Temporary Captains granted the rank of Major: G. Jackson, S. S. Dunn, T. M. Bellew, W. H. Alderton, P. J. Lane, W. Gemmill, J. G. Duncanson, R. MacDonald. Temporary Captains retaining the rank of Captain: J. P. McGreehin, R. W. L. Todd, P. C. Cole, C. L. Stewart, B. E. Laurence, B. Dunlop, A. Davidson, W. H. Bush, A. J. Dempsey, J. Russell, J. J. Dowdall, M. R. V. Ford, L. T. Stewart, R. M. Wilson, W. K. Connell, J. McPolin, I. S. James, S. J. Cowell, C. R. Denny, E. Gordon, A. Dick, A. Scott, E. D. Wortley, P. Davies, J. A. D. Radcliffe, H. J. Gater, S. P. Moore, G. O. Connell, L. C. Johnston, R. C. Maclachlan, C. N. Coad, A. F. Flower, W. Hornsby.

SPECIAL RESERVE OF OFFICERS.

Capt. W. Donald relinquishes the acting rank of Major.

TERRITORIAL FORCE.

Capts. (acting Majors) M. Coplans and E. A. Houchin relinquish the acting rank of Major on ceasing to be specially employed.

1st London Sanitary Company: Lieut. F. C. Cook to be Captain.

2nd London Sanitary Company: Lieut. S. Shaw to be Captain.

ROYAL AIR FORCE.

Medical Branch.—J. D. Keir (Surgeon Commander, R.N.) is granted a temporary commission as Lieutenant-Colonel.

Capts. H. Munro, J. A. Johnson, and S. A. Nield-Faulkner are transferred to the unemployed list.

H. J. Swan (late Flying Officer, R.A.F.) is granted a temporary commission as Flight Lieutenant.

THE HONOURS LIST.

The following awards for war services are announced:—

C.B.E.—Temp. Lt.-Col. R. Row, I.M.S.; Capt. D. R. R. Singh. I.M.S.; Mr. C. H. Elmes, O.B.E., officiating Health Officer, Port of Calcutta, Bengal.

O.B.E.—Miss R. Balmer, Hon. Capt. R.A.F. Med. Serv.; Flight-Lieut. R. L. Roe, R.A.M.C.; Mr. C. H. Lincoln, M.B.E., Asst. Surg., Ind. Med. Dept., acting Consul for Arabistan, Persian Gulf.

M.B.E.—Khan Bahadur Mir Diwan Ali, Civil Surg., Multan, Punjab; Mr. G. N. Coombes, Chief Med. and Sanit. Officer of the Cochin State, Madras; Mr. J. D. O'Donnell, Chief Med. Officer, Kolar Gold Field, Mysore.

BROUGHT TO NOTICE.

The names of the following (all of the R.A.M.C. except where otherwise stated) have been brought to the notice of the Secretary of State for War for valuable services rendered on hospital ships during the war:—

Capt. I. M. Byers; Temp. Capt. (acting Maj.) W. A. Clayton; Maj. E. L. D. Dewdney (T.F.); Maj. C. L. Dunn, I.M.S.; Temp. Capt. H. B. Emerson; Temp. Capt. J. H. Glover; Capt. J. W. Grice; Temp. Capt. W. R. G. Hamilton; Temp. Maj. J. G. Heath; Temp. Capt. T. Heywood; Temp. Capt. W. P. Jones; Temp. Capt. H. A. Lane; Temp. Capt. J. M. Lazenby; Temp. Capt. G. W. P. Maitland; Temp. Capt. (acting Maj.) H. McIntyre; Temp. Maj. R. T. Meadows, D.S.O.; Temp. Capt. (acting Maj.) H. H. O'Heffernan; Surg.-Maj. B. Pares, C.M.G., D.S.O., R.H. Gds.; Lt. (acting Capt.) E. H. Rainey; Temp. Maj. P. J. A. Seccombe; Temp. Capt. R. E. Smith; Temp. Maj. T. Walcot; Temp. Maj. A. W. Wilcox; Lt.-Col. H. A. Williams, D.S.O., I.M.S.

The names of the following (all of the R.A.M.C. except where otherwise stated), brought to notice for distinguished

nd gallant services and devotion to duty, are to be added to he lists already published dealing with the spheres of perations detailed:—

France.—Temp. Capt. H. Body; Col. N. Faichnie; Maj. J. H. urley; Capt. D. C. Scott.

Egypt.—Temp. Capt. W. I. Adams; Capt. (acting Lt.-Col.) J. lackwood; Lt. (temp. Capt.) W. M. Cameron; Temp. Capt. T. L. lark; Temp. Capt. W. E. R. Dimond; Lt.-Col. (acting Col.) C. arner, C.B.E.; Temp. Capt. F. W. Grant; Capt. D. R. Hennessy; t.-Col. P. S. Lelean, C.B.; Temp. Capt. F. A. L'Estrange; Capt. . H. Maingot; Capt. S. A. Mann; Temp. Capt. T. D. Miller; Temp. apt. G. C. Ramsay; Capt. P. W. Ransom; Capt. (acting Maj.) A. E. ichmond; Capt. P. P. J. Stewart; Temp. Capt. S. M. Vassallo; emp. Capt. M. J. T. Wallis; Capt. C. H. Welsh; Capt. . B. Willan; Temp. Capt. H. G. E. Williams. *Austr. .M.C.*—Maj. (temp. Lt.-Col.). J. R. Mc.N. Beith; Lt.-Col. . B. Blackburn, O.B.E.; Maj. (temp. Lt.-Col.) M. W. Cave; Capt. . A. Comins; Capt. C. R. Hodgson; Maj. E. K. Parry, M.C.; Maj. . Sutton; Capt. W. G. H. Tregear. *New Zealand M.C.*—Lt.-Col. . H. Walton. *I.M.S.*—Capt. A. W. Duncan; Capt. (acting Maj.) . L. Duncan; Temp. Capt. C. M. Ganapathy; Temp. Lt. G. A. ildreth; Capt. (temp. Maj.) R. F. D. MacGregor, M.C.; Maj. cting Lt.-Col.) J. Mc. A. Macmillan; Capt. A. Seddon; Temp. t. D. S. Otto.

Italy.—Temp. Capt. (acting Maj.) J. C. L. Day; Temp. Capt. acting Maj.) H. E. Gamden; Lt. W. R. McLinden.

Mediterranean Lines of Communication.—Col. J. C. B. Statham, .M.G., A.M.S.

Mesopotamia.—Temp. Capt. G. A. Back; Temp. Capt. B. E. A. att; Capt. A. B. Black; Temp. Capt. N. G. Braham, M.C.; Capt. . Brawn; Capt. (acting Maj.) E. Butler; Temp. Capt. L. D. allender; Temp. Capt. A. L. Candler; Capt. (acting Maj.) J. W. annon; Capt. R. Colley; Capt. W. H. Dye; Temp. Capt. H. Findlay; apt. (acting Maj.) J. F. Grant; Temp. Capt. N. Gray; Capt. (temp. aj.) T. J. Hallinan; Capt. J. S. Hopwood; Lt. W. M. Jones; apt. J. LeM. Kneebone; Lt. L. K. Ledger; Temp. Capt. J. N. Lyons; apt. (acting Maj.) C. E. W. McDonald; Temp. Capt. M. D. ackenzie; Temp. Capt. (acting Lt.-Col.) T. H. Martin; Capt. C. K. owll; Lt.-Col. A. R. O'Flaherty; Capt. A. B. Preston; Capt. (temp. aj.) H. G. Robertson; Capt. R. Rodger; Temp. Capt. B. T. aunders; Temp. Capt. R. G. Smith; Temp. Capt. P. Talbot; Temp. t. W. B. Vaile; Capt. (acting Maj.) A. Wilson; Temp. Capt. G. S. Woodnan. *I.M.S.*—Lt.-Col. A. E. Berry; Maj. (acting Lt.-Col.) E. W. C. radfield, O.B.E.; Capt. (acting Maj.) R. A. Chambers; Temp. apt. B. R. Chandorkar; Capt. (acting Maj.) P. D. Chopra; Capt. . C. De; Temp. Capt. S. B. Gothaskar; Lt.-Col. (temp. Col.) E. V. ugo, C.M.G.; Capt. (acting Maj.) E. W. O'G. Kirwan; Temp. Capt. . G. Mukharji; Maj. (acting Lt.-Col.) M. J. Quirke.

Salonika.—Capt. L. B. Clarke; Temp. Capt. W. D. Cruickshank; emp. Capt. J. R. Davies; Capt. G. Hardwike; Capt. (acting aj.) I. Jones; Capt. P. Seymour-Price; Capt. C. G. Skinner; apt. (acting Maj.) D. G. Stoute; Temp. Capt. A. C. Sturrock.

The names of the following have been brought to notice or gallant and distinguished services rendered at Aden uring the period from Sept. 1st to Dec. 31st, 1918:—

Lt.-Col. T. H. Foulkes, I.M.S.; Maj. (temp. Lt.-Col.) I. M. Macrae.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon he undermentioned officers:—

Army Medical Service.—Col. P. C. Burgess.

Royal Army Medical Corps.—Capt. (acting Major) A. L. Whitehead, 2nd Northern General Hospital; Capt. G. J. R. Lowe, th Northern General Hospital; Lieut.-Col. A. G. Hay, 3rd Scottish General Hospital; Capt. and Brevet Major K. W. Monsarrat, 1st Western General Hospital; Lieut.-Col. F. E. Fremantle, General List; Major W. D. Watson, 1st East Anglian Field Ambulance; Major A. E. Kidd, 3rd Highland Field Ambulance; Major J. Wood, 1st West Lancs Field Ambulance; Capt. F. W. K. Tough, 3rd West Lancs Field Ambulance; Major W. A. Burns, 2nd Lowland Field Ambulance; Major J. H. Dixon, 5th London Field Ambulance; Lieut.-Col. J. Allison, attached Northumbrian Yeomanry; Major P. McK. Terry, attached Wessex Division Ammunition Column, R.F.A.; Lieut.-Col. F. W. Gibbon, attached Tyne Electrical Engineers; Major (acting Lieut.-Col.) J. Scott, attached 5th Battalion, Royal Scots; Major W. Haig, attached 6th Battalion, Royal Highlanders; Major J. Middleton, attached 5th Battalion, Gordon Highlanders.

THE LATE DR. J. W. HEMBROUGH.—John William Hembrough, who died on Jan. 13th after undergoing an operation, had been medical officer of health for Northumberland for the past 26 years. A native of Lincoln, he studied medicine at St. Bartholomew's Hospital, London, where he held several resident posts. He qualified L.S.A. in 1865 and M.R.C.S. Eng. in the following year, and was health officer to the Tynemouth rural sanitary authority before becoming county officer, later obtaining the M.D. Durh. and the D.P.H.

SUDDEN DEATH OF MR. C. M. BERNAYS.—Charles Murchison Bernays, who qualified L.R.C.P. Lond., M.R.C.S. Eng. in 1906, was found dead on Jan. 6th at the Royal Victoria Hospital, Dover, where he was house surgeon, a few minutes after attending a casualty case. After qualifying, he started practice at Shirley, Birmingham, but joined the Royal Army Medical Corps on the outbreak of war, and served in a front line clearing station in France from 1914 to 1917, where in August of that year he was badly gassed. His death was due to hæmorrhage as a result of this gassing.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than* 9 *o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CORFIELD, C. R., L.M.S.S.A., has been appointed Second Anæsthetist to the Northern Hospital for Women and Children, Manchester.

SALMOND, R. W. A., M.D., Ch.M., Honorary Radiologist to University College Hospital, and Lecturer in Radiology at the Medical School.

VLIELAND, C. J., M.D. Durh., M.R.C.S., L.S.A., Medical Officer of the New Clinic for the Treatment of Venereal Disease at the Royal Devon and Exeter Hospital.

University of Cambridge: PALMER, W. G., of St. John's College, Demonstrator of Chemistry; THACKER, C. R. A., of Sidney Sussex College, Demonstrator of Physiology; and SWAN, M. B. R., of Gonville and Caius College, Demonstrator of Pathology.

Certifying Surgeons under the Factory and Workshop Acts: SELLORS, T. B., M.D. Durh. (Essex), MACCARTHY, J. T. (Coolrain), PRETTY, K., M.B. Camb. (Ipswich), DOUGLAS, J. H., M.D. Glasg. (Whithorn).

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—H.S. £200.
Bedford County Hospital.—H.S. and H.P. £175 and £150 respectively.
Belgrave Hospital for Children, Clapham-road, S.W.—Asst. P.
Birkenhead Borough Hospital.—Two Hon. Asst. M.O.'s.
Birmingham City Mental Hospital, Rubery Hill, near Birmingham.—First and Second Asst. M.O.'s. £500 and £400.
Birmingham, City Fever Hospital, Little Bromwich.—Asst. M.O. £300.
Birmingham General Hospital.—H.P., Obstet. H.S., and H.S. £100. Clin. Path. £600.
Bradford City Education Committee, Medical Inspection of School Children.—Asst. Sch. M.O. £600.
Bradford Union, St. Luke's Hospital.—Asst. Res. M.O. £400.
Bristol, Beach House Estate Sanatorium.—Res. Supt. M.O. £800.
Bristol General Hospital.—Senr. R.M.O. £300.
British Guiana.—Asst. M.O. £400.
Camberwell Borough.—Asst. M.O.H. £550.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.
Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.
Colchester, Essex County Hospital.—H.P. £200.
Cornwall County Council, Truro Venereal Clinics.—Part-time M.O.'s.
Darlington General Hospital.—H.S. £250.
Derbyshire Education Committee.—Sch. M.O. £500.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dover, Royal Victoria Hospital.—H.S. £180.
Dreadnought Hospital, Greenwich.—H.S. £50.
Dudley County Borough.—M.O.H. and Sch. M.O. £800.
Dudley, Guest Hospital and Eye Infirmary.—Vacancy on Hon. Surg. Staff. Also two Hon. P.'s.
East Suffolk County Education Committee.—Dentist £400.
Elizabeth Garrett Anderson Hospital, Euston-road.—Jun. Asst. P., Path., Asst. Path. Also Clin. Asst. £1 1s. per attendance.
Farringdon General Dispensary, 17, Bartlett's-buildings, Holborn Circus, E.C.—Hon. P.
Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.—Sen. M.O.'s. £600 each.
Gold Coast and Sierra Leone.—Dent. S. £500.
Hospital for Sick Children, Great Ormond-street, London, W.C.—H.S. £50.
Kincardine Education Authority.—Asst. Sch. M.O. £450
Lancaster County Asylum.—Asst. M.O. £300.
Leamington Spa, Borough of.—M.O.H. £650.
Leasowe, Cheshire, Hospital for Children.—Junr. M.O. £200.
Leeds Infirmary, Indoor Institutions, Beckett-street.—Second Asst. M.O. £300.
Leeds Public Dispensary.—Hon. Radiologist.
Lewes, East Sussex County Council Education Committee.—Jun. Asst. Sch. M.O. £450.
Lincoln County Hospital.—Jun. H.S. £150.
Lindsey County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £450.
Liverpool Stanley Hospital.—H.P. and S. £150 each.
London County Council Mental Hospitals Service.—Fifth Asst. M.O.'s. £300.
London Hospital Medical College, Mile End, E.—Lecturer on Neuroses and Psycho-Neuroses.
Manchester, Ancoats Hospital.—H.P. £150.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150. Asst. S. £50.
Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.
Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Clin. Assts.
Metropolitan Hospital, Kingsland-road, E.—Asst. P.
Middlesex County Council.—Temp. Tuberc. M.O. £600.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. Cas. O. Also H.S. £100.
Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Specialist M.O. £500. Two Surg. Specialists. £125. Jwo Junr. M.O.'s. £450 and £218 8s. Female Junr. M.O. £327 10s.

New Zealand, Auckland Hospital.—Bact. and Path. £900.
Norwich City.—Asst. M.O.H. £300.
Nottingham Children's Hospital.—Female Res. H.S. £200.
Nottingham City Education Committee.—Jun. Asst. Sch. M.O. £500.
Nottingham General Hospital.—H.S. £150.
Oldham County Borough.—Asst. M.O. £400.
Oxford, Radcliffe Infirmary and County Hospital.—H.P. Cas. H.S. £200.
Paddington Green Children's Hospital, London, W.—S. to Eye Dept., P. to Skin Dept., and P. to Out-patients.
Peterborough Infirmary.—H.S. £150.
Plymouth, South Devon and East Cornwall Hospital.—H.S. £200. H.P. £140.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. P., Hon. P. to Children's Dept., and Clin. Assts.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Clin. Assts.
Reeth Union and Rural District Council, Yorkshire.—M.O.H. £170.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. M.O.'s in Venereal Diseases (Female) Dept. £250 and £150 respectively.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Ophth. S. and Hon. S. to Out-patients.
St. Bartholomew's Hospital.—Asst. Physician-Accoucheur.
St. Mary's Hospital, Paddington.—First Asst. Pathol. £500.
St. Pancras Borough Council.—Asst. M.O. £450.
Salisbury Municipality, Rhodesia, S.A.—M.O.H. £600
Sheffield Royal Hospital.—Asst. Cas. O. £120.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Clin. Assts.
Straits Settlements.—Res. M.O. £840.
Straits Settlements and Federated Malay States.—M.O.'s.
Swansea County Borough.—Asst. M.O.'s. £600 and £500.
University of London, South Kensington.—Examiners.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—S. to Out-patients.
Wakefield, West Riding County Council.—School Oculist. £550.
Wallsend Borough.—M.O.H. £800.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Newmains, Duncannon, and at Rochdale.

Births, Marriages, and Deaths.

BIRTHS.

BIGGER.—On Jan. 16th, at a Nursing Home, the wife of Walter G. Bigger, D.S.C., M.B., B.Ch., St. Thomas's Hospital, of a daughter.

BONNEY.—On Jan. 10th, at Vicarage-gardens, Kensington, the wife of Ernest H. Bonney, M.R.C.S., L.R.C.P., of a son.

COLLINGRIDGE.—On Jan. 13th, at The Manor House, Goudhurst, Kent, the wife of W. R. Collingridge, M.R.C.S., of a daughter.

KENNEDY.—On Jan. 11th, at Wantage, Berkshire, the wife of W. D. Kennedy, M.B., of a son.

MARRIAGES.

SILLEY—BOSWELL.—On Jan. 15th, at St. Martin's Parish Church, Scarborough, Herbert Henry Silley, M.R.C.S., L.R.C.P., to Katharine Mary, eldest daughter of the late Mr. and Mrs. E. W. Boswell, of Norwich.

SUNDERLAND—SMITH.—On Jan. 15th, Reginald Henry Sunderland, M.R.C.S., L.R.C.P., of Bradford, to Grace Clarissa Smith, of Highgate, Walsall.

SWAN—KELLY.—On Dec. 10th, 1919, at the Roman Catholic Church, College-road, Malvern, by the Rev. J. Jordan, Harold J. Swan, M.B., B.Ch., of Terenure, Dublin, to Marcella Bertile Kelly, M.B., B.Ch., of Ballymote, Co. Sligo.

DEATHS.

ATKINSON.—On Jan. 14th, at his residence, Butts Park, St. Tudy, Cornwall, Charles Henry Fairbank Atkinson, O.B.E., M.R.C.S., L.R.C.P., Surgeon-Lieutenant, R.N.V.R.

CALEY.—On Jan. 15th, following an operation, Guthrie Neville Caley, M.D., M.S., of Colville House, Ealing, aged 58 years.

LEDINGHAM—On Jan. 13th, of heart failure, Alexander Napier Ledingham, M.B., C.M., F.R.F.P.S. Glasg., and D.P.H. Lond.

TURNER.—On Jan. 16th, at Stanton, Anerley, S.E., John Sidney Turner, J.P. (Kent), F.L.S., F.Z.S., M.R.C.S., aged 76 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
Letters of a Widowed Physician to His Daughter at Puberty, Maturity, Marriage, and Motherhood. Pp. 64. 2*s.* 6*d.*
Popular Chemical Dictionary. By C. T. Kingzett, F.I.C., F.C.S. Pp. vi. + 368. 15*s.*

CHURCHILL, J. AND A., London.
Year Book of Pharmacy. Edited by J. O. Braithwaite, T. Stephenson, and C. H. Hampshire. Pp. 520.
Modern Spiritism: Its Science and Religion. By A. T. Schofield, M.D. Pp. 260. 3*s.* 6*d.*
Ophthalmological Transactions. Vol. XXXIX. Ophthalmological Society of the United Kingdom, Session 1919. Pp. 428. 12*s.* 6*d.*

WRIGHT, J., Bristol.
Diseases of the Throat, Nose, and Ear, for Practitioners and Students. By W. G. Porter, M.B., F.R.C.S. Edin. 3rd ed. Fully revised under the editorship of A. Logan Turner, M.D. Edin., F.R.C.S. Edin. Pp. 300. 12*s.* 6*d.*
Oto-Rhino-Laryngology for the Student and Practitioner. By Dr. G. Laurens. Translated from 2nd French ed. by H. C. Fox, F.R.C.S. With foreword by Dr. J. Dundas Grant. Pp. 339. 17*s.* 6*d.*

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Jan. 29th.—Papers:—Prof. W. Bateson: The Genetics of "Rogues" among Culinary Peas. (Pisum Sativum.)—Mr. L. T. Hogben: Studies on Synapsis. I., Oogenesis in the Hymenoptera (communicated by Prof. E. W. MacBride).—Mr. H. Onslow: On a Periodic Structure in Many Insect Scales, and the Cause of their Iridescent Colours (communicated by Prof. F. G. Hopkins).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Friday, Jan. 30th.

SOCIAL EVENING: The next Social Evening will be on Friday, Jan. 30th, at 8.30 P.M. Sir D'Arcy Power has kindly agreed to give a twenty minutes' talk (illustrated) on "The Fees of Our Predecessors."

The Library will be open, and Dr. Andrew Balfour, Dr. F. W. Cock, Dr. W. J. R. and Mrs. Simpson, and Dr. Jane Walker will exhibit objects of interest. Music and light refreshments. It is hoped there will be a good attendance of Fellows and their friends (including ladies), who will be cordially welcomed.

The President, Sir Humphry Rolleston, and Lady Rolleston will receive the guests at 8.30 P.M.

MEETINGS OF SECTIONS.

Monday, Jan. 26th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.
Paper:
Mr. S. F. St. J. Steadman: Dental Sepsis in Children, its Consequences and Treatment.

Tuesday, Jan. 27th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.
Paper:
Dr. W. H. Willcox: Typhus and Relapsing Fever in Mesopotamia and Northern Persia.
Dr. Arkwright and Dr. Ledingham will speak on the bacteriology.

Thursday, Jan. 29th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Discussion:
On "The Merits and Defects of the British Health Resorts," to be opened by Dr. Neville Wood.

THERAPEUTICS AND PHARMACOLOGY.—Members of this Section are cordially invited to attend and to take part in the above Discussion.

Those desiring to speak are requested to send their names to Dr. C. F. Sonntag, 80a, Belsize Park-gardens, N.W. 3.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Jan. 26th.—8.30 P.M., Demonstration of Pathological and Medico-Legal Specimens by Dr. J. L. Dimond, Dr. J. Freeman, Dr. B. Spilsbury, Dr. C. E. Lakin, Dr. A. Fleming, Dr. Elsworthy, and Dr. Greenfield.

HUNTERIAN SOCIETY, at the School of Oriental Languages, Finsbury-circus, E.C.
WEDNESDAY, Jan. 28th.—9 P.M., Paper:—Dr. A. E. Gow: Treatment by Protein Shock.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
Six Hunterian Lectures on John Hunter's Observations and Discoveries in Anatomy and Surgery (illustrated by his specimens and preparations).
MONDAY, Jan. 26th.—5 P.M., Prof. A. Keith: IV., His Contributions to Our Knowledge of the Kidneys, Bladder and Urethra, and Diseases connected with these Structures.
WEDNESDAY.—5 P.M., Prof. A. Keith: V., His Contributions to Our Knowledge of the Genital and Reproductive Systems.
FRIDAY.—5 P.M., Prof. A. Keith: VI., His Contributions to Our Knowledge of the Eye, Ear, and Nose.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY Jan. 27th.—5 P.M., Lecture I.
A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.
WEDNESDAY, Jan. 28th.—4.30 P.M., Lecture I.
A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.
THURSDAY, Jan. 29th.—4.30 P.M., Lecture IV.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.
A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)
MONDAY, Jan. 26th.—9.15 A.M., Lecture III.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)
WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)
SATURDAY.—10.15 A.M., Lecture IV., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (University of London).

A Post-Graduate Course of Lectures on Syphilis will be given by various members of the staff of King's College Hospital during the ensuing year :—

Friday, Jan 30th.—9.15 p.m., Lecture I.:—Dr. W. d'Este Emery: Pathology and Pathological Diagnosis; Methods of Collecting Material for Spirochætes and for Wassermann Reaction; Interpretation of Results.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, Jan. 26th.—11 a.m., Out-patients: Dr. Goodall. 2 p.m., In-patients: Dr. Moon.

Tuesday.—2 p.m., Out-patients: Dr. R. Wells. 3 p.m., In-patients: Dr. Gibbes.

Wednesday.—2 p.m., Out-patients: Dr. Moon. 5.30 p.m., Lecture :—Dr. Price: The Pulse in Diagnosis (1).

Thursday.—10 a.m., In-patients: Dr. Hamill: 2 p.m., Out-patients: Dr. Price.

Friday.—2 p.m., Out-patients: Dr. Gibbes. 2.30 p.m., In-patients: Dr. Wells.

Saturday.—10.30 a.m., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Jan. 29th.—5 p.m., Lecture III.:—Dr. O. May: Tuberculosis in Relation to Life Assurance.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, Jan. 27th.—2 p.m., Demonstration :—Dr. J. Metcalfe: The X Ray Treatment of Diseases of the Thyroid Gland. 4.30 p.m., Lantern Lecture :—Lieut.-Col. R. H. Elliot: The Treatment of Glaucoma.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Jan. 26th.—2–3.30 p.m., Out-patient Clinic: Dr. Collier. 3.30 p.m., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. III.

Tuesday, Jan. 27th.—2–3.30 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Ward Cases: Dr. Risien Russell.

Wednesday, Jan. 28th.—2 p.m., Mr. Scott: Auditory Vertigo and Forced Movements. 3.30 p.m., Dr. Greenfield: Pathological Demonstration.

Thursday, Jan. 29th.—2–3.30 p.m., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 p.m., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. IV.

Friday, Jan. 30th.—2–3.30 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Ward Cases: Dr. Tooth.

Saturday, Jan. 31st.—9 a.m., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. Hinds Howell, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Friday, Jan. 23rd.—5 p.m., Special Lecture :—Prof. W. M. Bayliss: Acidosis.

Saturday.—10 a.m., Dr. A. Saunders: Medical Diseases of Children.

Monday.—5 p.m., Mr. Addison: Club Foot.

Tuesday.—5 p.m., Mr. Banks Davis: Common Affections of the Middle Ear—Treatment.

Wednesday.—5 p.m., Mr. Souttar: Clinical Surgery.

Thursday.—5 p.m., Dr. G. Stewart: Encephalitis Lethargica.

Friday.—5 p.m., Special Lecture :—Mr. MacMahon: The Treatment of Functional and Organic Affections of Voice and Speech.

ROYAL COLONIAL INSTITUTE, at the Central Hall, Westminster, S.W.

Tuesday, Jan. 27th.—3.30 p.m., Paper :—Dr. L. W. Sambon: Tropical and Sub-Tropical Diseases.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Tuesday, Jan. 27th.—3 p.m., Lecture :—Prof. G. E. Smith: The Evolution of Man and the Early History of Civilisation. I., Man's Origin.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, Jan. 26th.—3.30 p.m., Dr. Nutt: Localisation of Foreign Bodies.

Tuesday.—4 p.m., Dr. Hay: Methods of Examination of Eye (continued).

Wednesday.—3.30 p.m., Dr. Wilkinson: Enlarged Tonsils and Adenoids.

Thursday.—3.30 p.m., Dr. Skinner: Urticaria: Purpura, &c.

Friday.—4 p.m., Dr. Hay: Ocular Sequelæ of General Diseases.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease :—

Wednesday, Jan. 28th.—4.15 p.m., Mr. B. Ward: Gonorrhœa in the Male. (Lecture II.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Jan. 27th.—4.30 p.m., Lecture :—Mr. W. H. Hey: Surgical Treatment of Incurable Cancer.

SALFORD ROYAL HOSPITAL and ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, Jan. 29th.—4.30 p.m., Mr. Douglas: Clinical Demonstration. (At Ancoats Hospital.)

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN BOMBAY, 1918.

The population of Bombay at the Census taken in 1911 was found to be 979,445, and on this figure the ratios of sickness and mortality are still calculated, but Dr. J. A. Turner, the then health officer, reports that since that year "the city's population has vastly increased; besides the natural increase, we have to take into account the increase due to adventitious causes, which may be roughly put down at 200,000 to 300,000." The ratios of disease incidence and mortality require, therefore, to be materially modified. "The outstanding feature of the year was a series of epidemics, which followed one another in quick succession, lasting altogether for over 39 weeks, and were responsible for an appalling increase in mortality."

Birth and Death Ratios.

The birth-rate is reckoned as 22·18 per 1000 and the general death-rate at 59·61, the respective decennial averages (1908–17) having been 18·72 and 34·02. Dr. Turner, however, reckons the true birth-rate to have been 30·12 and the true death-rate 56·28. The infant mortality is estimated at 434·82 per 1000 births (including those unregistered), compared with 304·25 in 1917 and 278·48 in 1916; the total number of infantile deaths was 12,829, of which 4648 were due to respiratory diseases, 3069 to debility, and 2033 to affections of the nervous system. Of 14,442 infants born in one-roomed tenements 76·72 per cent. died, of 2117 born in two-roomed tenements 49·88 per cent. died, while of 4051 infants born in hospitals only 7·92 per cent. died, thus clearly proving that "the appalling mortality" is to a very great extent preventable. Much good work is being done by municipal nurses and health visitors under the scheme inaugurated by Lady Willingdon in 1914; which, moreover, now supplies pure pasteurised milk, not only for the children born in the three maternity homes that have been established, but also for those born under the supervision of the health visitors or municipal midwives; milk to the value of about 700 rupees (say, £70) being distributed every month. It is now proposed to open infant welfare centres in various parts of the city to give advice to mothers and medical aid to infants and to establish day nurseries.

The total number of deaths registered was 58,388 (compared with 33.390 in 1917); this gives a ratio of 59·61 per 1000, considerably higher than the decennial average of 34·02, and higher than in any year since 1905, when it was 61·54. But, as Dr. Turner points out, 3274 of these deaths (including 1230 deaths in war hospitals) occurred among new arrivals not belonging to Bombay; by deducting these, and adding the deaths of Bombay inhabitants that occurred in their houses up country, a corrected total of 55.128 deaths gives a ratio of 56·28 per 1000 on the 1911 population. "Such an estimate is desirable, as it marks a greater approximation to the truth than the bare statement of the number of deaths in the population." It is often said that statistics may be made to prove anything, but qualifications of this kind are absolutely necessary to obtain as near an approach to accuracy as is practicable. Of the total mortality of 58,388, about 40 per cent. was due to respiratory diseases (23.487 deaths, of which 10,107 occurred in September and October). The ratio was 23·97 per 1000, compared with 9·42 in the preceding quinquennium; presumably it was connected with the influenza epidemic. During September the total deaths in the city rapidly increased from 102 on the 10th to 712 on the 30th. On Oct. 6th there were 768 deaths, of which 161 were recorded as influenza, and 461 as due to respiratory diseases. During the worst plague epidemic the highest total mortality on a single day had been 433 on Feb. 16th, 1900. Great efforts were made to meet the emergency by the Medical Relief Committee of the Corporation and the Municipal Commissioner. Posters and leaflets were circulated urging the people to go to hospital on the appearance of sickness, and offering free treatment, milk, and "pneumonia jackets." Temporary or "table" dispensaries were put up in the poorer parts of the city to the number of about a hundred; temporary hospitals were opened by different communities, Parsees, Jains, and others in various parts of the city. Special wards were placed at the disposal of the health authority in various hospitals; the military authorities lent the use of 400 beds, and also lent hospital orderlies and ambulances and cots; the Western India Turf Club lent their offices as an intelligence bureau; the Red Cross Society supplied sleeping-suits. By such energetic and efficient action the progress of the disease was arrested after 62 days. The actual number of deaths above normal for this period was 20,258, averaging 326 per day—that is, in a *yearly* ratio of 108·17 per 1000 of the estimated population (or of 121·48 per 1000 of the population according to last census).

Tuberculosis and Other Fevers.

Tuberculosis caused 2513 deaths (2·56 per 1000), a higher incidence than in 1917 (2·16), and the quinquennial mean (1·99). Mussalmans suffered most (3·99), and next to them Eurasians (3·82); Parsees suffered least (0·96), and next to them Jews (1·36) and Europeans (1·42). The King George V. Anti-Tuberculosis League carries on both prevention and treatment in coöperation with the Health Department. Enteric fever, "malaria," and "ague and remittent" are classed, together with scarlet and relapsing fevers, under the head of "All fevers." From the combined diseases there were 4553 deaths, compared with 2449 in 1917; the enteric deaths were 125, those from "malaria" were 200, while from "ague and remittent fever" there were 4219, compared with 2012 in 1917, and 2132, the quinquennial average. A severe outbreak of cholera (the worst that has been experienced within the last 30 years) commenced in December, 1918, and lasted until the end of February, 1919; there were 396 cases in December and 973 in January and February, amounting to 1369 during nine weeks. The case-mortality was 56·9 per cent. in 1918 and 52·8 in 1919. More than half the deaths occurred within 24 hours of admission to hospital, the patients being already semi-moribund. Dr. N. H. Choksy, assistant health officer in charge of the Arthur Road Hospital for infectious diseases, states that the relative fatality of the disease varies considerably with the social condition of the patient; among Parsees it has been found to be 28 per cent.; Europeans, 31·0; Mahommedans, 47·5; and Hindus, 53·4 (statistics of 1910 to 1919, including two epidemics).

Plague.

The same officer reports on the work of the Maratha Plague Hospital, which was also used for the treatment of infectious diseases, supplementary to the Arthur Road Hospital; 328 cases of plague were admitted, of which 263 were fatal (80·1 per cent.). The treatment of this disease by subcutaneous injections of colloidal preparations has now been carried out during two full epidemic periods, 107 cases having been so treated during the year under report out of the total 328 admissions; all moribund and semi-moribund cases, convalescent and semi-convalescent patients, and all whose illness had lasted six or more days were excluded, and the treatment restricted "to the most acute cases from the first to the fifth day of illness who clinically exhibited some chances of recovery." Of the 107 patients thus treated, 75 died and 32 recovered, giving a case-mortality of 70 per cent. By grouping these cases with those similarly dealt with in 1916 and 1917 it was found that of a total of 295 the case-mortality was 64·4 per cent.; in 222 cases treated in a similer manner by the Plague Commission in 1909–12 the case-mortality had been 66·2 per cent. The best results were obtained with collosol iodine (106 cases with 59·4 per cent. case-mortality), collosol argentum (93 cases, 64·5 per cent.), and iodeol (63 cases, 65 per cent.).

Conclusions.

In the concluding paragraphs of this very able report Dr. Turner mentions that, as far back as 1914, he pointed out that the expenditure on public health administration was, in proportion to the population, less than it had been in 1901; that proposals for improvement had been made, approved, and sanctioned, but not carried out; that the Health Department had been starved financially, and that no improvement could be made in the city unless a larger view is taken of the situation. The population has increased from 776,000 in 1901 to over 1,200,000 in 1919; the rateable value has risen from 286 to 754 lakhs of rupees, while the expenditure on public health works has decreased from 28 per cent. to 17 per cent. of the total. We regret to learn that this is Dr. Turner's last report as executive health officer. Though Kipling says that "East is East and West is West, and never the twain shall meet," as a matter of fact they do meet in Bombay, where the great majority of people who visit India make their first acquaintance with the "gorgeous East." The sanitary welfare of Bombay is a matter of importance to the whole Indian Empire. If the civil authorities neglect to act on the recommendations of their skilled and experienced adviser on matters affecting the public health they assume a very grave responsibility, for which, sooner or later, they will undoubtedly have to give an account.

NORWICH NON-MEDICAL CORONERS AND NECROPSIES.

THE attitude of a non-medical coroner to the performance of necropsies on persons who have died suddenly has recently aroused some interest in Norwich. A woman, aged 75, had been for some time last summer under the treatment of a doctor. On the morning of Jan. 6th she complained to her son of having had a bad night, and said she was suffering from pain in the chest and "wind round the heart." Shortly afterwards she went out to a shop to buy meat, and while there she collapsed and fell. The police ambulance was sent for, and the policeman in charge, believing the woman to be dead, took her to the Norfolk and Norwich Hospital, where the house surgeon pronounced life extinct. At the subsequent inquest the house surgeon stated that he had performed a post-mortem examination, and that the cause of death was valvular disease of the heart. The city coroner, Mr. W. N. Ladell, commented on what he considered the irregularity of the proceedings. He said that if a person was found dead the police had no business to remove the body to the hospital; that this woman should have been removed to her home and a doctor—the police surgeon if possible—called in to pronounce whether life was extinct; and then that his (the coroner's) instructions should have been awaited. The coroner considered that no post-mortem was necessary in this case, as the woman had been attended by a doctor, who could have been called. He stated that in future no post-mortem was to be made in similar circumstances without instructions from the coroner. As no such instructions had been given, he refused to allow the house surgeon a fee for the post-mortem, though he paid him his fee for giving evidence.

BOILING WATER FOR INDIGESTION.

AN inquest was recently held at Hayle, Cornwall, relative to the death of a man, aged 44 years. Evidence showed that the deceased "sipped a cup of boiling water to cure indigestion." Medical evidence stated that "death was due to suffocation, owing to œdematous laryngitis caused by drinking boiling water," and the jury returned a verdict that death was due to misadventure.

MONTHLY VITAL STATISTICS OF LONDON.

To the Editor of THE LANCET.

SIR,—In the table of Analysis of Sickness and Mortality Statistics in London during November, 1919, which you published in THE LANCET of Dec. 13th, 1919, I observe that the figures are apparently based on the "Estimated civil population of London in 1917." This basis was commenced to be used first in THE LANCET of March, 1918, and some of those who follow the tables may be wondering why, with the end of the war and demobilisation, this old basis is still being used.

I am, Sir, yours faithfully,

Jan. 17th, 1920. ENQUIRER.

*** For some time past now the official weekly returns issued from Somerset House have explained this apparent anomaly by printing the following footnote, which will answer our correspondent's question:—

> The estimates of population refer to the year 1917, and are based on the returns furnished under the National Registration Act, 1915, and under the scheme for rationing of sugar. It is necessary for the present to continue the use of the estimates of population as in 1917, because those for 1918, although they might now be used, would necessarily differ more from the facts of the present time than the earlier estimates. The main change which occurred between mid-1917 and mid-1918 was further depletion of the male civilian population by enlistment, and as this has now been more than made good by demobilisation, it follows that the 1917 estimates, though they understate the present population, do so to a less extent than would those for 1918.—ED. L.

Communications, Letters, &c., to the Editor have been received from—

A.—*Answers*, Lond., Editor of; Dr. H. W. Armit, Sydney.

B.—Board of Agriculture and Fisheries, Lond.; Surg.-Comdr. K. D. Bell, R.N., Portsmouth; Dr. G. Blacker, Lond.; Mr. H. Barwell, Lond.; Mr. H. Becker, Lond.; Dr. A. Blackhall-Morison, Lond.; Mr. G. Bethell, Lond.; Mr. F. E. Beddard, Lond.; Dr. M. W. Browdy, Manchester; Sir A. Bowlby, Bt., Lond.; Dr. H. K. Brade-Birks, Salford; Dr. E. G. Bunbury, Crawley; Dr. H. Brown, Chislehurst; Dr. H. Brown, Lond.

C.—Miss A. Cooper, Derby; Dr. D. W. Carmalt-Jones, Lond.; Dr. F. G. Chandler, Lond.; Mr. H. W. Crosse, Lond.; Dr. E. P. Cumberbatch, Lond.; Dr. P. J. Cammidge, Lond.; Mr. J. F. Colyer, Lond.; Dr. E. L. Collis, Cardiff; Dr. P. C. Coombes, Coulsdon.

D.—Dr. B. V. Dunn, Loughborough; Mr. P. K. Dutt, Leeds; Sir H. B. Donkin, Lond.; Miss G. H. G. Dundas, Middlesbrough; Department of Scientific and Industrial Research, Lond.; Dr. J. S. C. Douglas, Sheffield; Mr. J. Denby, Sanford, Maine; Dr. A. G. B. Duncan, Stonehaven.

E.—Capt. J. I. Enright, R.A.M.C., Liverpool; Major-Gen. Sir G. Evatt, Lond.

F.—Dr. J. G. Forbes, Redhill; Fellowship of Medicine, Lond., Sec. of; Dr. F. Fergus, Glasgow; Mr. H. R. Foote, Lond.

G.—General Electric Co., Lond.; Dr. W. E. Gye, Lond.

H.—Dr. L. Hill, Lond.; *Hospital Gazette*, Lond.; Mr. E. W. Hardy, Manchester; Mr. W. W. Hardwicke, Lond.; Harveian Society of London, President and Council of; Dr. F. Hernaman-Johnson, Lond.

I.—Insurance Committee for the County of London.

L.—London County Council, Education Officer of; London Hospital Medical College, Sec. of; Sir Arbuthnot Lane, Bt., Lond.; Dr. T. L. Llewellyn, Newcastle.

M.—Mr. H. W. L. Molesworth, Lond.: Dr. J. B. Mennell, Lond.; Dr. R. D. Moyle, Davosdorf; Ministry of Health, Lond.; Sir John MacAlister, Lond.; Medical Supply Association, Lond.; Ministry of Pensions, Lond.

N.—National Institute for the Blind, Lond., Librarian of; Dr. J. B. Neal, New York.

O.—Mrs. N. O'Brien, Mitcham.

P.—Mr. H. A. Powell, Lond.

R.—Mr. J. D. Rolleston, Lond.; Royal Infirmary, Manchester, Sec. of; Royal Sanitary Institute, Lond.

S.—Dr. A. Savill, Lond.; Dr. C. Slater, Lond.; Dr. R. H. Steen, Dartford; Dr. W. H. B. Stoddart, Lond.; Prof. W. Stirling, Manchester; Scottish Board of Health, Intelligence Branch; Dr. H. Spencer, Lond.

T.—Sir J. Tweedy, Lond.; Dr. A. H. Thompson, Lond.; Dr. H. A. Treadgold, Lond.; Dr. F. S. Tinker, Banstead; Tasmania, Department of Public Health of.

V.—Vermin Repression Society, Lond.

W.—Dr. J. P. Williams, Namtu; Mr. P. J. Whitty, Wicklow.

Y.—Dr. H. Yofé, Haifa.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423 Strand, W.C. 2.

An Address

ON

THE POSITION OF THE MEDICAL PROFESSION IN RELATION TO NATIONAL PHYSICAL EDUCATION.

Delivered before the Royal Society of Medicine on Wednesday, Jan. 21st, 1920,

BY K. DIGBY BELL, M.R.C.S., L.R.C.P.LOND.,
SURGEON COMMANDER, ROYAL NAVAL SCHOOL OF PHYSICAL AND RECREATIONAL TRAINING, PORTSMOUTH.

THE study of physical education has been my hobby since 1906, when I was first appointed on the staff of the R.N. School of Physical Training at Portsmouth. At that time I realised that the subject was essentially one worthy of the full attention of the medical profession. Since 1906 the Admiralty has given me many opportunities of studying the subject theoretically and practically outside the navy as well as in it, under varied conditions and in many countries. I have had a year's course at the Central Gymnastic Institute at Stockholm. Of the several billets I have held I feel the most interesting and important has been that to which I was appointed during the four and a half years of war.

In 1914 (after the ship I was then serving in, *Audacious*, had been sunk by mines) I was appointed as one of the medical officers in *Iron Duke*, the flagship of Admiral Sir John Jellicoe, and remained on in that ship when Admiral Sir David Beatty took over the command of the Grand Fleet. I was fortunate enough to be taken over in 1917 to *Queen Elizabeth* when the flag was transferred to that ship. I combined with my duties of junior medical officer in the ship the position of adviser in physical training matters to the Commander-in-Chief. Hence I was kept in constant and close touch with the sports and recreations of the Fleet.

The development of physical training in the navy started in 1902, when the Admiralty decided it was necessary to have a Central Headquarters School of Physical Training in the navy for the purpose of training officers and petty officers to be instructors. After full discussion and inquiry the Swedish system was chosen as being the most suitable for practical application to a large number of men and boys, and for the training of an all-round type of physique. In 1903 the services of Mr. Broman, who was a third-year graduate of the R.G.C.I. of Stockholm, were obtained. He gave his services for six weeks to introduce to the navy the Swedish system of gymnastics. From that date until the commencement of the war the work done at the Headquarters School of Physical Training has been progressive.

At the commencement of hostilities in 1914 the Physical Training School at Portsmouth was closed, so the supply of instructors was cut off.

RECREATION A NECESSITY.

During the war many valuable lessons have been learned by everybody, and especially has this been the case with regard to our methods of physical training. Up north in the Grand Fleet the spectre we had to consider seriously was the possible onset of a depression due to the incessant nervous strain and ghastly monotony. There we had our men-of-war crowded to their utmost limit with virile human beings, buoyed up with the daily hope that with to-morrow would come "The Day." That to-morrow gradually became weeks and months, and the months extended to over four years, with the ever-haunting thought that another winter was coming on. When it is realised that the mere sight of a tree filled thousands of men with a thrill of intense joy; that to get mud on their boots even once a month was a thing to be proud of to those whose blood called for natural exercise; that they lived in a home in which they could never get away by themselves for one moment's peace; the sort of restless monotony of their lives is not difficult to appreciate. That this monotony cannot be said to have affected the morale of the sailor to any extent was due in great part to the ever-watchful care and forethought of those in charge of units and squadrons in the Grand Fleet. The lesson learnt was that recreation, and more recreation, of a simple and attractive nature for *all* on board ship was wanted. It was always possible to keep the 10 per cent. who excelled at games amused and energetic. They would roller-skate, box, dance, or do anything to keep themselves fit and cheery when weather and other conditions made landing impossible. But it was the 90 per cent. who did not excel at games on whom we had to concentrate, in order to kindle enough energy to shake off the dull and listless mood into which they were unconsciously drifting. Recreational committees were formed and schemes worked out to assist those ships less fortunately equipped and situated. Physical training began to be looked upon in a much bigger light; the study of amusements of a healthy and stimulating nature for the whole community was embodied in it; the need for that psychological element of personal touch between officer and man was never more apparent. So when the Physical Training School was revived at Portsmouth early last year, 1919, the subject had also to be reviewed afresh.

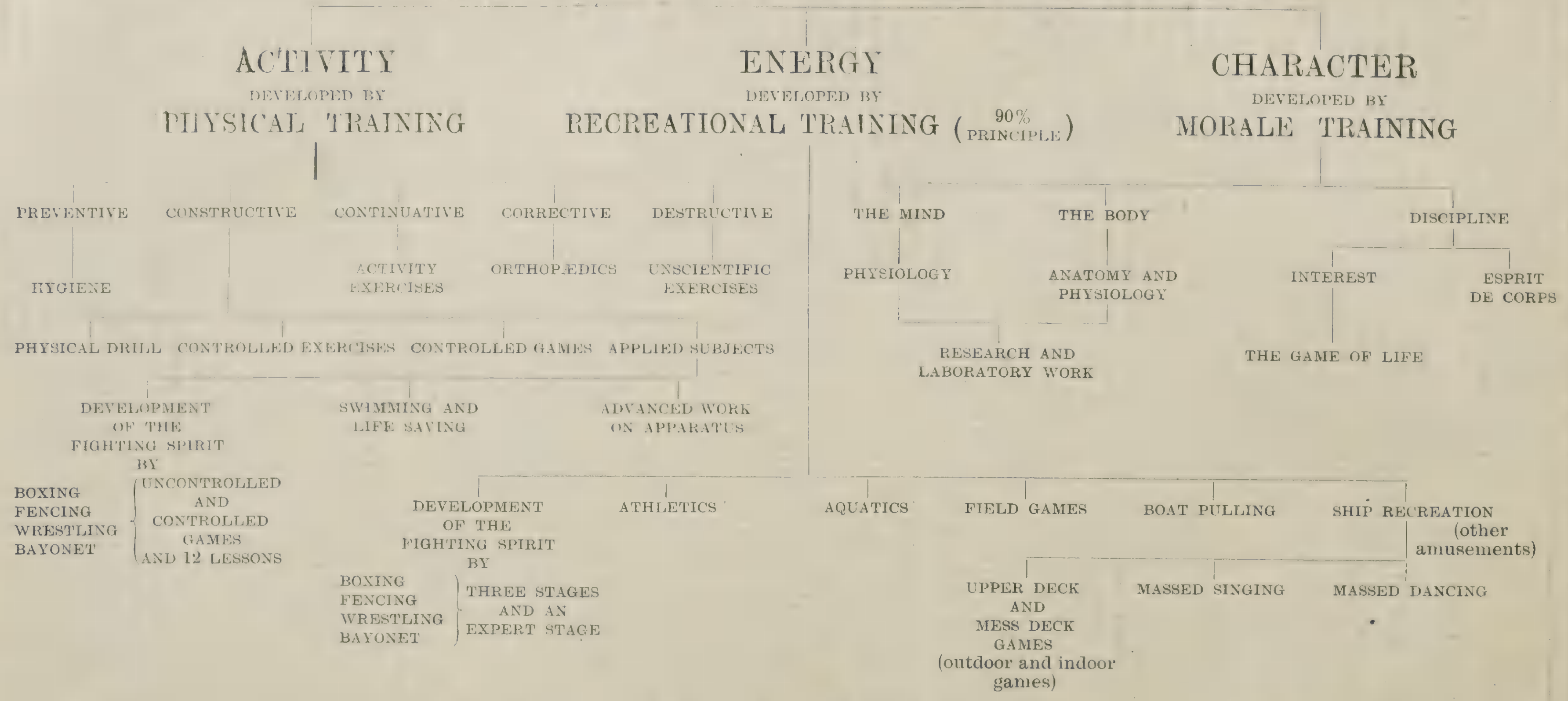
This element of recreation had also been realised as an integral part of the scheme of training in our armies at home and abroad. That exceptionally fine system of treating the trench-weary soldier had been inaugurated by Colonel R. Campbell, D.S.O., at his headquarters of Physical and Bayonet Training at St. Pol. It had to be realised that physical education embodied a larger field of study and research now than was ever believed in pre-war days.

EXPLANATION OF SCHEME OF PHYSICAL EDUCATION.

I will try to deal with the result of war experience with regard to the reconstruction of our ideas. I particularly wish to place before you a chart of physical education. It is naturally incomplete, but I think it is admirably suited to form the basis of a national scheme of physical education, and will endeavour to prove this. At present we are using it as the groundwork of our scheme for training the officers now under instruction at the R.N. School of Physical and Recreational Training (see chart attached).

We divide physical education into three main headings: (*a*) activity developed by physical training; (*b*) energy developed by recreational training; (*c*) character developed by morale training; and though for the purposes of description I shall run quickly over the branches radiating in sequence from each main heading, yet it must be understood that every portion of the chart is interdependent, the development of character being an object of the recreational training just as the recreational

PHYSICAL EDUCATION



THE GAME OF LIFE

1. RULES—
   1. DON'T PLAY FOUL
   2. DON'T CHUCK THE SPONGE UP
   3. GO ALL OUT TO WIN
   4. PLAY FOR YOUR SIDE and NOT FOR YOURSELF

2. REQUIREMENTS—THE ACHIEVEMENT OF THE HIGHEST HUMAN ENDURANCE THROUGH

1. STOMACH	FOOD	
2. HEALTH	FULL BODILY MOVEMENT	
3. SENTIMENT	SONG and DANCE	
4. HAPPINESS 5. COMRADESHIP	INDOOR and OUTDOOR RECREATION	ON THE 90% PRINCIPLE

3. ACQUIRED BY—SIMPLICITY and ATTRACTIVENESS

4. RESULT—MENTAL AND PHYSICAL ACTIVITY LEADING TO PERFECT MORALE

training is, after all, an essential part of physical training.

Activity is health—the two are inseparable. We all of us realise that as long as a child is active he is in good health; we become anxious at once if his activity wanes or is replaced by listlessness.

(A) *Physical Training.*

So we study activity in our development of physical training which deals with measures which are: Preventive, Constructive, Continuative, Corrective, Destructive.

Preventive measures are dealt with by lectures on the anatomical and physiological hygiene of the body, pointing out those elements of daily existence which are harmful to the development of a healthy and active frame. Anatomy and physiology naturally come prominently under this heading.

Constructive measures speak for themselves. They involve the application of bodily exercise to the young to ensure as perfect a body as it is possible to acquire. The subject is dealt with under the following headings: (*a*) *Physical drill.* This may be defined as the application of any bodily movement to produce a spectacular effect rather than a constructive effect. An instructor can apply drill, but a teacher works for the constructive effect on the bodies and minds of those he is training. (*b*) *Controlled exercises* embody the minute study of the application of the Swedish system of gymnastics made attractive so as to suit the characteristics of our nation. (*c*) *Controlled games* consist of a large series of those games, taught in the uncontrolled stage under recreational training, which a teacher may wish to employ in his gymnastic table to provide an attractive setting for constructive exercise. (*d*) *Applied subjects* are the connecting link between physical and recreational training, but more easily dealt with under the former heading.

Continuative.—No system of education which dose not ensure continuity should be worthy of consideration.

It is necessary to understand the difference between what may be called educative physical training—that is to say, the definite constructive development of the bodies of young and growing people, and the maintenance of physical fitness in the fully developed bodies of those of maturer age. There comes to the latter, sooner or later, a desire for physical improvement, and with it a conviction that some form of daily exercise is necessary to ensure bodily health and activity. Activity exercises have been compiled for this purpose. They are simple in character, take two minutes to do, and provide full and free movement of the body in an interesting and attractive form.

Corrective.—Orthopædics is a subject which at once calls for the knowledge and assistance of the medical profession and for the research work embodied in the last heading on the chart.

Destructive.—A teacher of physical education should know what evil effects may accrue from an injudicious use of bodily activities. This subject is dealt with by lectures and practical demonstrations of such unscientific exercises, done with or without apparatus, which can be proved to be destructive both anatomically and physiologically.

B. *Recreational Training.*

Here we have an essential element in the scheme of physical education. It is the very foundation of the science. It provides measures for dealing with all types of pure recreation, and must be applicable to the majority rather than the minority. We all know the inestimable value of the sports and games in our own schools and universities. But there are those whose football and cricket consisted more often of noisy squabbles and fighting than of playing for their side; whose only chance of learning something of our so-called national sports was by watching a football match where 22 paid players performed and thousands looked on.

Recreation develops energy, and energy is dwindling because more people are willing to watch than to take part; 10 per cent. wish to play and 90 per cent. are content to watch.

This term—the 90 per cent. principle—is used in connexion with the recreational training scheme depicted on the chart, and requires brief explanation. It is agreed that perhaps 10 per cent. of the population have a natural tendency to excel at sports and games. In the past the needs of these have been specially catered for. The 90 per cent. have never indulged systematically in sports and games, principally because they have not had the opportunity, or possibly they have been discouraged by their lack of ability to compete with the 10 per cent. This scheme of recreational training applies principally to the 90 per cent., and provides for them an immense range of physical and recreational activities, a new and hitherto undeveloped incentive to enjoy them, and an organisation whereby the utmost advantage as regards development of energy and character may be secured. The six subheadings, development of the fighting spirit, athletics, aquatics, field games, boat-pulling, and other amusements, must be understood to cover something quite apart from their everyday meaning. A Recreational Training Handbook, which deals only with this subject, has been compiled, though not yet published, and contains these six sections:—(i.) Energy exemplified. (ii.) The classification of physical effort. (iii.) The standardisation of all physical activities (300 and more types to date). (iv.) The method of rewarding 90 per cent. (collective) effort. (v.) The introduction of the scheme. (vi.) Musical activities. The headings on the chart under which this recreational training is developed speak for themselves.

The development of the fighting spirit is obviously fostered by the practice of certain sports involving the use of weapons. From a national rather than a naval point of view such pastimes may be considered inadvisable. It may be said they produce the idea of a hateful militarism, the savour of war. The heading could be left out, or the subjects taught could be those which develop the spirit of self-defence. Be that as it may, the methods of teaching the sport chosen are conducted on the same lines, first as an *uncontrolled* game, then *controlled*, with at first one simple rule which must be kept, then another rule, and so on until the game is completely controlled, the pupils themselves acting as judges to see fair play or to penalise any breach of the rule. The next stage is that of *90 per cent. contests*, in three degrees, and an expert stage, so that *all* can compete without having their interest in the game cramped by the 10 per cent. who excel. *10 per cent. competitions:* Championships as usually held to-day. In this manner athletics, aquatics, fixed games, boat-pulling, ship recreation (which in a national scheme would read other amusements) are also conducted.

For example, let us suppose a school wishes to run an athletic sports meeting at which *every single boy* is to compete, and his individual effort is so marked as to have an important bearing on the result for his house.

We look at our Classification of Physical Effort in the Recreational Handbook to choose an event from each heading, so that the programme of sports will be representative of all the necessary degrees of effort, of which we find 11 headings. Now for one of these (the agility part of our programme) we may choose the 100 yards race. Every boy has to run and the time he takes to cover the 100 yards is converted into a percentage on a known factor of skill, which represents his share towards the aggregate marks of his house. Then by a simple score-sheet (the arrangement of which is all explained in detail) the average marks of the whole team or house are arrived at, and every single competitor can feel he has done his bit, and thus energy and his desire to "go all out" for his side is cultivated and encouraged.

Massed Singing and Dancing.

Of the heading "ship recreation or other amusements" I would like to add a few remarks. For upper deck and mess deck games could be substituted outdoor and indoor games (of which we have collected a great number). In massed singing we have a really interesting psychological element. We sing when we are happy and cheerful, and by encouraging massed singing we can intoxicate crowds into being happy and cheerful. Music deals with the sentimental side of a nation's character, and true sentiment is an overpowering force which can be guided for good or evil. Patriotism and love of our Alma Mater are developed and stimulated by suitable songs, and for this reason the subject is revived here. The bluejackets simply revel in participating in our musical activity evening at our Portsmouth school, and sing folk-songs and sea chanties with great zest.

Massed dancing is another way of dealing with sentiment. The war opened our eyes to the power of dancing as a recreation; evening after evening on the upper deck of our big ships we could hear over our heads the swish and stamp of the feet of hundreds of sailors pacing out the D'Albert or Valeta. That dancing appeals to the mass of our nation is more and more apparent. I am not alluding to the Jazz craze, but to the more stately and graceful dances, and the simple country, Morris, and sword dances.

C. *Character Developed by Morale Training.*

Herbert Spencer wrote: "Of the ends to be kept in view by the legislator, all are unimportant compared with the end of character making—this alone is national education." The development of character permeates the whole of this scheme of physical education. In the scheme shown it is dealt with under headings which are particularly the work of the medical man. Lectures on psychology and on the psychology of teaching are given. Lectures, assisted by the microscope, magic lantern, and specimens, deal with the simple truths of cell life, of elementary botany, and of reproduction. The sex question is developed at some length. I am one of those who have learned by experience the importance of instructing the young, simply and normally, to know the truth about their bodies, thus cultivating self-reverence and self-control.

These subjects are all included under the headings on the chart—the mind, psychology, the body, anatomy, and physiology. Though the subject is dealt with here in as practical a manner as possible, it is realised that in a national scheme, where its survival in a nation must be aimed at, the study of character would be further developed under other headings—e.g., religion, idealism, ethics, &c. Research and laboratory work is needed, and will undoubtedly come.

Discipline is a subject of the utmost importance these days, when both employer and employed should be trained to understand its intricate nature.

We deal with it on the lines of *esprit de corps* and interest as opposed to a discipline by fear of punishment, as far as the young are concerned. The last item on the chart is put down as "The Game of Life" for want of a better title. It embodies in it the whole ideal of this system of physical education; it must be not only understood, but brought into every development in order to ensure success. Its spirit is being inculcated into the youth of the nation by the "Boy Scouts" movement. I cannot help feeling myself that had it been embodied into our whole educational system for the last 10 years or more, the industrial unrest of to-day and the use of the strike weapon might never have shown themselves.

WHY WE ARE A C 3 RACE.

Such are the lines on which we are trying to reconstruct our methods and teaching at the Naval Physical and Recreational Training School at Portsmouth, and anyone desiring to come and see the work in practice will be welcomed.

That some system of national physical education is necessary to-day has been made only too forcibly apparent to us all. It must have been a shock to every thinking man to realise that during the critical days of the last year or two of the war only 36 per cent. were fit to fight. Certain words used by General Sir H. S. Horne, speaking at Bradfield College early last year, have never to my knowledge been contradicted, though I had hoped they might be. The papers quoted him as having said: "It was utterly scandalous that the British should have ranked at the bottom—he had not the figures, but he believed at the bottom—of the list as regards physical fitness of the nations from whom they were able to obtain statistics during the war."

I personally feel there are three great reasons why we found ourselves to be a C 3 race: (1) We have allowed the spirit of competition to concentrate on the training of a few specialists in one or other of our national sports, to the detriment of the mass of less fortunate citizens, who are not considered worthy of attention, as they perhaps do not shape well. I pointed out in a lecture to the United Services Medical Society in 1909 that specialising in one or other kind of sport was one of the evils gradually depressing the all-round physique of the whole nation. I said then that if we were to go to war it would be the all-round physique we should want, and want in vain, and unfortunately I have not been proved wrong. (2) The fact that the subject of physical education has not been taken up seriously by the nation, but has been left to private enterprise and so-called experts in various methods. The instructors have often had only a few weeks' instruction in how to conduct stereotyped exercises. So far as men are concerned, the Swedish system of gymnastics has never been appreciated in this country. There are several women's colleges where two years' training was the minimum, and this is now being extended to three years. The type of instructor employed is another point in this connexion. We need the university student, the officer rather than the man, and, moreover, central control by the Government is essential. (3) The most important reason for our physical deficiency, in my opinion, is the fact that the subject has not been studied sufficiently by doctors. Our medical schools teach anatomy and physiology more with the ultimate object of curing disease than of preventing it.

The chart I place before you to-day is far from being my work or that of any medical man; but it is the result of 17 years' practice and constant study on the part of a retired naval officer of the combatant branch—Commander B. T. Coote—who is at present assisting us at Portsmouth in the capacity of civilian adviser to our school. The teachers (where there are any) and the instructors at our boys' schools in nearly every case have no medical training, nor even in most cases the support of the school doctor. I hold that until the movement is taken up wholeheartedly by the medical profession it will lack the public support essential to its success.

NEED OF A SYSTEM OF PHYSICAL EDUCATION.

This brings me to the crucial point which I have set myself to place before you. The country urgently needs a more comprehensive and a better organised system of physical education, and, gentlemen, it is up to our profession to see that it gets it. I do not presume that you should go away with the idea that this chart depicts *the* system that is wanted; I place it before you for want of anything better. It certainly treats the subject in its proper sphere of importance and magnitude, and it forms a basis for thought and future development when more research is devoted to the subject. I do not wish to infer that the navy alone realises the necessity for recreational training. The army and Air Force have adopted such methods for some time past, and we are all working on the same ideas for one national object. The Board of Education also has recently published a new syllabus of Physical Training for Schools (1919) giving suggestions to their teachers in which the importance of games of all sorts is distinctly realised, and a certain number of indoor and outdoor games are suggested. But a central controlling body of this huge branch of preventive medicine is needed to-day. We have now a Ministry of Health. Could not this or another Government body be approached by a strong appeal from the medical profession of Great Britain for: (1) The formation of a National Council of Physical Education to study and elaborate the lines our national system of physical education should take; (2) the formation of a British Physical Educational Association on some such lines as our present British Medical Association, to control all members practising physical education in Great Britain; (3) the formation of a Central Gymnastic Institute where teachers of physical education could be educated on such lines as would be directed by the national council, and obtain the certificate of the association mentioned above.

The matter is urgent. The Prime Minister himself coined the expression that we are a C 3 nation from the facts given him by the medical profession, and he said we must become an A 1 nation if we want to remain a great empire. But a lethargy seems to overshadow the question as to who is to take action. Early last year the headmasters of our big public schools included the subject of physical education in their Annual Conference. The President of the Conference says:—

> "I approached the Board of Education in my capacity as chairman of the Headmasters' Conference to push for proper Government control with regard to training experts of physical education—i.e., the necessity for a National College of Physical Education. I was given clearly to understand that the Board of Education could not view matters in this light and considered such a development should be left to private enterprise."

Last May the United Services held a Physical Training Conference at which were present representatives of our colonies and a member of our Board of Education. There were many issues under discussion, but the most important one was round the problem of creating a central organisation such as a Physical Training University for the Empire as a whole, to embrace all classes, civil and military. The proceedings ended in the formation of a subcommittee consisting of one member from each of the Services with the representative of the Board of Education to sit as chairman (subject to approval of the Board of Education), and I had the honour of being elected as the naval representative. This subcommittee was to prepare a paper to be submitted to the main conference with a view to its being put before the Government. This subcommittee was to be called as soon as information was received that the Board of Education had sanctioned their representative sitting as its chairman. That was on May 20th, 1919. It is now Jan. 21st, 1920, and no subcommittee has been called. Who is to take action? The headmasters have failed, the desire of the United Services met with no response; but the medical profession may succeed in awakening the country to the necessity of such a measure of preventive medicine.

An Address

ON THE

INDICATIONS FOR CÆSAREAN SECTION.

Read before the Midland Obstetrical and Gynæcological Society at Derby on Dec. 2nd, 1919,

BY H. BECKWITH WHITEHOUSE, M.S. LOND.,
F.R.C.S. ENG.,

HONORARY ASSISTANT GYNÆCOLOGIST, GENERAL HOSPITAL,
BIRMINGHAM.

GENTLEMEN,—In 1752 Mauriceau, in his "Diseases of Women with Child," referred to the operation of Cæsarean section as "a damnable policy martyring and killing the mother to save the child, and never to be done till the mother was dead." In 1910, or 158 years after Mauriceau's very plain-spoken observation, Amand Routh published his report upon Cæsarean Section in the United Kingdom before the Fifth International Congress of Obstetrics and Gynæcology at Petrograd. For the purpose of this investigation Routh collected material from over 100 obstetric surgeons, and was able to accumulate details of 1282 cases. The paper may claim, therefore, to represent the current views relating to this operation in the United Kingdom at that time. Almost ten years have elapsed since its publication. Nearly five of these years have been occupied by war, but throughout this period, although very little has been published, the science and art of obstetrics has continued and, we hope, progressed. During and after years of conflict the lives of mother and child are of the highest national importance. The present appears an opportune time, therefore, to discuss the indications for an operation designed to eliminate maternal and fœtal mortality. Are the risks of Cæsarean section lessened, and have its indications become extended as the result of the publicity of Amand Routh's paper?

In every obstetric operation, whether it be performed by nature *per vias naturales* or by the surgeon, certain postulates must be fulfilled before an unqualified success can be claimed. These may be enumerated as follows: 1. There must be no maternal mortality. 2. There must be no maternal morbidity. 3. A living and viable child must be born. The factors which demand consideration, therefore, in discussing the indications for Cæsarean section compared with other methods of delivery in difficult labour are, on the one hand, maternal mortality and morbidity, and on the other fœtal viability.

The first observation that I would make is that I believe the popularity of Cæsarean section amongst obstetric surgeons is increasing. No figures have recently been published, but information obtained from various sources goes to show that the method of delivery is not approached to-day with the same feeling of apprehension that it engendered a few years ago. It is probable that if a similar investigation was now conducted as that by Routh barely ten years ago a much greater fund of material would be available. With increasing confidence and detailed technique the mortality of Cæsarean section also appears to be diminishing, and it is more than possible that an era will arrive when the operation is considered to be the safest mode of delivery in the majority of cases of complicated labour.

Broadly expressed, the indications for classical Cæsarean section, and it is with this operation alone that the paper is concerned, may be divided into two groups.

(*a*) Cases where a definite obstruction to the passage of the child exists, either from disproportion between the fœtal and maternal bony parts, malpresentations or neoplasms, &c.

(*b*) Cases where urgent delivery is called for in the absence of previous dilatation of the birth canal either for the sake of (1) the mother, as in eclampsia; (2) the child, as in placenta prævia.

THE PLACE OF CÆSAREAN SECTION IN CONTRACTION OF THE PELVIS.

What is the present-day view with regard to Cæsarean section as the method of treatment in cases of pelvic contraction? The three other modes of procedure available are: (1) induction of labour before term, (2) symphysiotomy or pubiotomy at term, or (3) craniotomy. A few years ago we used to direct our conduct by the measurement of the conjugata vera. If the latter measured 2½ inches to 3 inches Cæsarean section was the method preferred, provided the membranes were intact. If, however, it measured over 3¼ inches and the head presented, the indication was to induce labour at the thirty-fifth week. Personally, I lay less and less stress upon pelvic measurements and place more and more importance upon Müller's method of adapting the fœtal head to the pelvic brim. It appears futile and grossly unscientific to pin one's faith upon a measurement when after all it is but relative to another factor which is unknown. Müller's method is of great value in estimating the moment when it is advisable either to induce labour or to decide upon a section later on. This raises the problem as to whether after all we *are* correct in inducing labour. The maternal mortality of induction is certainly nil, whilst in Routh's series of cases the maternal mortality of uncomplicated Cæsarean section is 2·9 per cent.; in other words, that of other gynæcological cœliotomies. However, the fœtal mortality in induced labour is still considerable. Thus Eden states that out of 309 cases of pelvic contraction at Queen Charlotte's Hospital during the four years 1905–1908 101 had a premature labour induced by Krause's method. The fœtal mortality was 13 per cent. The average weight of the infant was from 5 to 5½ lb. The argument therefore resolves itself into whether we are to risk a possible maternal mortality of 2·9 per cent. for the sake of lowering the high fœtal death-rate of 13 per cent? Personally I am of the same opinion in this respect as Hastings Tweedy, and think that induction is not advisable. A woman risks a mortality of 2 per cent. to get rid of a fibroid; why should she not therefore risk a similar mortality for the sake of a healthy living child at term?

Pubiotomy and symphysiotomy will never, I believe, have a wide application owing to the high maternal mortality and morbidity. Thus in Munro Kerr's series of 275 cases of symphysiotomy from all sources the maternal mortality was 6·5 per cent. and the fœtal mortality 10 per cent., not very encouraging, to say the least. Herbert Spencer has published considerable data relating to the morbidity of pubiotomy, quite sufficient anyway to discount any possible advantages of the operation.

I turn now to the vexed question of the place of Cæsarean section in those cases where the membranes have ruptured and delivery has been attempted per vaginam—in other words, the so-called "suspect cases." This group is, and as long as it occurs will always be, a stigma upon the medical profession. If women were properly examined during the later months of their pregnancy disproportion between the fœtal head and the pelvic brim would be discovered, and these cases would not occur. Every case of obstructed labour at term from this cause is a reflection upon the obstetric skill and care of the medical attendant. The risk of Cæsarean section, once repeated and persistent attempts at delivery by high forceps have failed, is magnified nearly 15 times. In Routh's figures the mortality of the operation in cases where attempts have been made to deliver by forceps or where repeated examination has taken place is 34·3 per cent. Simple rupture of the membranes without examination is not such a grave accident, although serious enough. The mortality in such patients is 10·8 per cent. What is the alternative procedure? It is, of course, craniotomy, with its maternal mortality of 8 per cent. and a morbidity of 20–30 per cent. If the child is dead there is, of course, no question as to which is the proper procedure. What is to be done, however, when the child is alive? Personally, I would not perform craniotomy upon a living child. I have been confronted with the problem upon two occasions recently, and in each case I deliberately chose to deliver by the abdominal trans-peritoneal route, previously employing Maxwell's method of intra-amniotic lavage with saline. I was lucky in that both mothers recovered without morbidity. In a case obviously septic my practice would be to drain the pelvis into Douglas's pouch, with possibly a lateral rubber drain into each flank. I await discussion of these points with considerable interest, as I recognise that I am on highly debatable ground.

INDICATIONS OF CÆSAREAN SECTION FOR UTERINE HÆMORRHAGE.

Ante-partum uterine hæmorrhage occurs, of course, in the form of accidental hæmorrhage and bleeding due to placenta prævia. Has Cæsarean section a place in the treatment of either condition? In the case of concealed accidental hæmorrhage with a tense tender uterus with inertia the operation is most certainly called for. Most people are agreed that in order to save the mother Cæsarean supravaginal hysterectomy is the correct procedure. The mortality of the complication is high, and the only method of reducing it is to proceed at once to Cæsarean hysterectomy without attempting other methods and wasting valuable time.

What is to be done, however, for placenta prævia? The maternal mortality is not great, varying in different clinics from 2·5 to 3·5 per cent. In a series of 41 cases recorded by Hastings Tweedy during the seven years of his mastership of the Rotunda Hospital two mothers died. The fœtal mortality is, however, appalling. Thus, in Tweedy's series of 41 cases 24 of the children were born dead. This high fœtal mortality is, of course, due to two factors; the first is the separation of the placenta and the interference with the fœtal circulation; the second is the method of treatment by version and bringing down a leg, a method designed to save the mother at all costs at the expense of the child. When Amand Routh published his report ten years ago the general opinion of British obstetricians was that as a routine treatment of placenta prævia there was no place for Cæsarean section. This opinion was expressed in a discussion upon a paper read by Dr. Henry Jellett, and the only recognised indication for Cæsarean section was "where the cervix was so rigid and undilatable that the treatment by bi-polar version as first suggested by Braxton Hicks was impossible." As I have already stated, however, no treatment is satisfactory which does not bring maternal and fœtal mortality to its lowest limit. The arguments advanced in favour of bi-polar version are all to the credit of the mother and to the debit of the child. Is this right, and if wrong, can it be altered? It appears to me that if by means of an operation with a mortality of little more than 2 per cent. we can afford a saving of fœtal life and lower the terrible fœtal mortality of the generally accepted method of bi-polar version that operation ought to receive more attention. Kronig and Sellheim publish 26 cases of Cæsarean section for placenta prævia with no maternal mortality, and, mark this, no fœtal mortality. In the available statistics every attention is paid to maternal mortality, and it is argued that as the existing method of delivery is so safe for the mother, why alter it? The infant is quite a secondary consideration. I would combat this argument in the strongest terms. If a method is available in which, without imposing undue risk upon the mother, the child may also be saved, then, in my opinion, that method should be adopted. In other words, if in a case of placenta prævia the child is alive and of a viable age I would unhesitatingly resort to Cæsarean section in preference to risking the child's life by bi-polar version. The indication for the operation will depend, therefore, entirely upon the date at which the placenta calls for evacuation of the uterus. If hæmorrhage occurs at a period before there is a reasonable chance of the child surviving, and, of course, if it is so severe as to have caused fœtal death, then bi-polar version is the operation of choice.

THE INDICATION FOR CÆSAREAN SECTION IN ECLAMPSIA.

The third and last group to which I wish to draw your attention is the place of Cæsarean section in the treatment of ante-partum eclampsia. The argument in favour of rapid evacuation of the uterus in this condition must rest, of course, upon the concession that the placenta is the source of the toxæmia. If this is granted, and there are many points in its favour to which I need not refer on this occasion, then Cæsarean section offers the safest method of conserving the lives of the mother and child. Eclampsia is a serious disease, and *general* statistics show that it is accompanied by a maternal mortality of from 20 to 30 per cent. The fœtal mortality is also high, about 39 per cent. The majority of cases of eclampsia occur in primiparæ before the onset of labour. The cervix is undilated, and if evacuation of the uterus is necessary and advisable the alternate modes of delivery are either accouchment forcé or vaginal Cæsarean section. Accouchment forcé is to be condemned. It is unscientific, and the results of the procedure are bad. Vaginal Cæsarean section, on the other hand, does not appear to offer the same advantages as the abdominal route. Access, especially in primiparæ, is not good, and consequently the operation is not so rapid. Added to which, there is liable to be more bruising of the soft parts and consequent risk of sepsis. There appears to be a special predisposition of the tissues to septic infection in cases of eclampsia, and for this reason the method of rapid delivery which is least liable to bruising and sepsis is best. The vagina is not so easily rendered sterile as the abdomen, in the emergency attached to any obstetric operation for eclampsia. For these reasons I believe the abdominal method to be the best route.

I am one of those who believe that rapid evacuation of the uterine contents is an all-important factor in the treatment of eclampsia, but I also believe that it should form the *earliest* method employed. Here I differ from the view generally held and advised by Dührssen and Bumm—viz., that it is inadvisable to empty the uterus by abdominal or vaginal Cæsarean section "after the first fit," as 75 per cent. recover without such operation. This figure, 75 per cent. of recoveries without operation, looks well, but what of the other 25 per cent.? Is not the first eclamptic convulsion the danger signal? If so, why delay and temporise with methods designed to combat the toxæmia already existing? Surely the ideal treatment is to remove at once the source of the toxæmia and then fight the latter with every available means. The Rotunda method of treatment by gastric and enterolavage combined with morphia and the administration of sodium bicarbonate is undoubtedly good, with a mortality of only 6 mothers in 74 cases, as published by Hastings Tweedy. Might it not be even better, however, if combined with immediate evacuation of the uterus upon the first indication of the disease? Dührssen and Zweifel have stated that improvement is greater in eclamptic patients after artificial than after spontaneous delivery. Is it not possible that in the latter the toxæmia is greater owing to the longer retention of toxic material?

The present general high mortality associated with eclampsia probably exists because treatment is not standardised and every man is a law unto himself. My own practice is to combine the Rotunda treatment with immediate evacuation of the uterus upon the first indication of the condition. If labour is not in progress and the cervix is undilated I always resort to Cæsarean section as being the most rapid and the safest method.

CONCLUSION.

In conclusion I may say that for the purpose of this paper I have referred to principles and not enumerated cases. As a matter of interest, however, I may state that on looking through my case-histories for the past 12 months I find that I have performed Cæsarean section upon 11 occasions. The indications were as follows:—

Indications.	Cases.	Maternal mortality.	Fœtal mortality.
Pelvic contraction: Flat pelvis	2	Nil.	Nil.
,, ,, Round ,,	5	,,	,,
Placenta prævia (central)	1	,,	,,
Eclampsia	3	,,	1

The maternal mortality was therefore nil, and one baby only was lost. This baby died upon the fifth day, and its death was due, I believe, to neglect upon the part of a nurse. Four of the cases of Cæsarean section were performed in the patients' own houses and as emergencies without any preparation, such as is the usual routine before a pre-arranged abdominal section. There was no mortality and no morbidity, which goes to prove that the operation may be performed with safety provided that adequate surgical principles are observed at the time.

There were two cases of maternal morbidity, both in nursing homes. One was a case of eclampsia in which the patient's doctor had ruptured the membranes before admission. The other was a case of flat pelvis, where intra-uterine sepsis occurred on the eighth day, in spite of the fact that no vaginal examination had been made prior to operation and the membranes were intact. In this instance the infection was traced to a nurse with a septic finger who was attending the patient. Both patients, however, recovered, and the morbidity cannot be attributed to the choice of the method of operation.

CEREBRO-SPINAL FEVER IN INFANTS AND YOUNG CHILDREN:

ITS TREATMENT AND AFTER-EFFECTS.

BY HELEN M. M. MACKAY, M.D. LOND., M.R.C.P.,
ASSISTANT PHYSICIAN, QUEEN'S HOSPITAL FOR CHILDREN;
BEIT MEMORIAL RESEARCH FELLOW.

EIGHT cases of cerebro-spinal meningitis in children under 8 years of age came under my care between September, 1916, and July, 1917. The series, though short, is, I think, one of considerable interest, and illustrates some of the main points with regard to this disease in young children.

Method of Treatment.

All these patients were treated by repeated lumbar puncture and the intrathecal injection of polyvalent antimeningococcal serum prepared by the Lister Institute. A general anæsthetic was rarely administered. There was not a single death, though some were very severe chronic cases of the posterior basic type.

The plan followed, speaking generally, was to continue the administration of serum daily until no meningococci could either be found in direct films or grown in culture from the cerebro-spinal fluid, and to continue lumbar puncture as long as th intrathecal pressure remained excessive. Exceptions to this plan of treatment are mentioned below The dose of serum given varied according to th quantity of fluid withdrawn and the intratheca pressure. As much as 20 c.cm. was given, in single dose, to an infant of four months.

The series is too short a one for any generalisations, but I attribute the recovery of these cases t two causes: (1) The efficacy of the serum administered, and (2) the large number of lumbar puncture performed.

Mortality and Sequelæ in Young Children.

Before the introduction of serum treatment th mortality in infants ranged, according to Flexne from 90 to 100 per cent.[1]; whereas F. E. Batten give the following figures for endemic posterior basi meningitis in London: "15 per cent. recover com pletely, 35 per cent. survive, but exhibit som permanent defect, either mental impairment, hem plegia, diplegia or blindness, while the remainin 50 per cent. prove fatal."[2]

Dr. Josephine Neal, in a series of 76 childre under one year treated with serum, had a mortalit of 50 per cent. Others record a mortality of fro 48·6 per cent. to 64·2 per cent.[1]

An adult who recovers seldom shows any pe manent after-effects of the illness,[3] but it is othe wise in young children, partly because they s frequently come under treatment late in the diseas on account of the not uncommon insidious onse and the difficulty in diagnosis, and partly becaus in their case the cranial capacity is not a fixe quantity, and therefore the increase in pressure i more gradual than in the adult.[4]

Necessity for Repeated Lumbar Puncture.

In chronic meningitis the intrathecal pressur appears to remain persistently high for a greate length of time than in acute cases; consequentl I believe it is absolutely necessary in most cases posterior basic meningitis to practise prolonge lumbar puncture in addition to the administratio of serum, although I am aware that variou authorities have stated that harm might resu from a large number of lumbar punctures.[5] If th is to be performed daily for many days, it is bes to dispense with a general anæsthetic wheneve possible on account of the disturbance to feedin thereby involved.

The cases given below have all been examine about two years after the attack of meningitis wit a view to ascertaining the after-effects, if any, le by the disease.

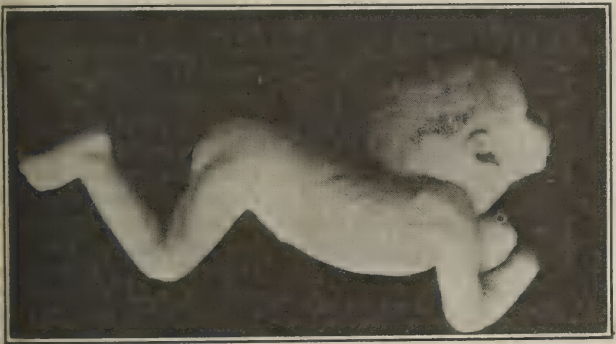
CASE 1.—Charles W., then aged 2 years 9 month was admitted to the Royal Free Hospital on Jan. 6t 1917, on the sixth day of his illness, and was a in-patient for 43 days. On admission he was we nourished, T. 101°, P. 92, unconscious, with gener rigidity and head retraction, herpes round the mout and furred dry tongue. The cerebro-spinal fluid wa turbid with a large deposit of polymorphonuclear pu cells and many intra- and extra-cellular mening cocci. Lumbar puncture was performed daily, with on exception, from the sixth to the twenty-third day illness, and again four times subsequently—20 lumba punctures in all. He was given seven doses of serum followed by the administration, commencing on th twenty-first day of illness, of an autogenous vaccine. lumbar puncture as late as the thirty-eighth day illness revealed a fluid which, though normal i character, was still under considerable pressure, but o the forty-second day only 2 c.cm. were withdrawn. Th temperature (excepting for a serum reaction from th twenty-fifth to the twenty-ninth days of illness), wa ractically normal after the fourth day in hospital. On scharge, the forty-eighth day after the onset of disease, e child was in a very drowsy, semi-stuporous, mental ate, and unable to sit up. His vision was apparently ormal, but he was, so far as could be ascertained, one deaf—he took no notice when a cab-whistle was own behind his back. I considered him one of the ilures of serum treatment, as I believed all mental velopment was likely to be arrested.

In July, 1919, he was seen again, when he was a well-veloped, intelligent, though shy child of 5 years old, ft. 9½ in. tall (average for age 3 ft. 5½ in.). He is not tually stone deaf, but for what he understands of the oken word he is apparently almost entirely dependent lip-reading, and is consequently, as his teacher ports, slightly backward in attainments for his age. iss E. Lowry, M.B., who kindly sent me a report on the r condition, says that the tympanic membranes are rmal in appearance. She was not able to ascertain her satisfaction what degree of bone conduction was esent, but it appeared to be fair. Mr. Malcolm epburn examined the boy's eyes, and reported that e appearance of the optic discs was normal (no record vision is possible).

It will be seen that in this case deafness (pre-umably a nerve deafness), is the only disability ft, yet in spite of this the child understands early all his mother says to him, and is himself le to talk, although it has been stated that below the age of 7 or 8 years permanent deafness sually leads to an associated mutism ; even though eech has begun it usually disappears."[6]

CASE 2.—Arthur M., then aged 8 months, was lmitted to the Royal Free Hospital on March 13th, 17, about three weeks after the onset of his illness, d was an in-patient for three months. On admission was absolutely unconscious, with general rigidity, ad lay in the typical attitude of head retraction with exion of all the joints of upper and lower limbs. trasbismus and inequality of pupils were present. The ild was fairly well nourished. The fontanelle barely lmitted the tip of the finger, and consequently anges in intra-cranial pressure could not be estimated palpation. Cerebro-spinal fluid was withdrawn nder considerable pressure ; it was slightly turbid and icroscopically showed polymorphonuclear cells and umerous meningococci, chiefly extra-cellular. Lumbar ncture and the injection of serum were performed daily r seven days, by which time meningococci had dis-opeared from the cerebro-spinal fluid. On the eighth y only 1 c.cm. of blood-stained fluid was withdrawn ery slowly, although lumbar puncture heretofore had vealed a fluid under pressure. The three subsequent mbar punctures were dry, and it was supposed that lhesions had developed preventing the outflow of fluid. ead retraction increased after admission till the ciput touched the back, strabismus was marked, and there was difficulty in swallowing and progressive wasting feeds by mouth were supplemented by nasal feeding for over six weeks. The temperature only once reached 100°, on the third day in hospital; on the whole it showed little variation from the normal. The photograph of the child shows his condition on about the fiftieth day of disease.

FIG. 1A.

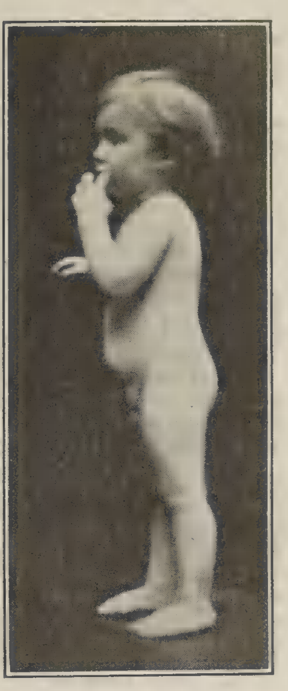


CASE 2 (Arthur M.).—Aged 9 months, about fiftieth day of illness. The wasting was much more marked than is apparent in this photograph.

After about four weeks in hospital spontaneous, though slow, improvement set in. Recovery was much delayed by an attack of diarrhœa and vomiting. Emaciation was extreme, his weight fell from 17 lb. 8 oz. to 11 lb. 14 oz. When he left hospital there was slight head retraction and he was not able to sit up in bed and took but little notice of his surroundings. However, six weeks later, at the age of 12 months, he was doing well in all respects ; all head retraction had disappeared, he was strong and gaining weight, and took took an interest in all he saw.

His mother gives the following account of his recovery. For some weeks at least after leaving hospital the child did not recognise her, but he steadily improved. He was clean in his habits at about 15 months. He began to talk at 18 months and spoke well at 2 years. He did not walk steadily however, until he was 2½ years old. He is now (July, 1919) 3 years 2 months old, is well developed for his age, and appears thoroughly intelligent. Hearing is normal, and apparently the only disability now present is some strabismus. Mr. Hepburn states that this condition appears to be due to an error of refraction, for which he has ordered glasses. The discs are rather pale, but there is nothing to indicate that this is a pathological, not a normal, pallor. (The mother states there was no squint before the attack of meningitis.)

FIG. 1B.



The same case aged 3 years 2 months. Physical and mental development normal —the only disability is a squint, stated by the mother to date from the meningitis.

It seems probable that this was not a true case of blockage of the outflow of fluid from the ventricles to the spinal canal, but that the failure to obtain fluid at subsequent lumbar punctures was due to hæmorrhage caused by pricking a vessel on the previous occasion. This is a not infrequent occurrence in young children. During convalescence as much as 30 c.cm. was withdrawn. This case also illustrates the very slight amount of pyrexia sometimes present in chronic cases.

CASE 3.—Ernest W., aged 4 years, was admitted to the Royal Free Hospital on March 26th, 1917, on the twenty-third day of his illness, and was an in-patient for nearly five months. On admission he was extremely wasted and white. The temperature varied from 97° to 102° F., the pulse was very poor, 120 to 168 or more. He lay on his side scarcely moving, head retracted, back arched, unconscious, and eyes half shut. His limbs, however, were flaccid. There was well-marked evidence of rickets with bowing of the legs. The cerebro-spinal fluid showed polymorphonuclear pus cells and isolated pairs of intracellular meningococci Twenty-five lumbar punctures were performed in all ; one daily till the fifteenth day after admission (thirty-eighth day of disease), and after that at longer intervals until the seventy-third day of disease. 30–60 c.cm. were generally withdrawn each time during the first 15 days, and as a rule 30–40 c.cm. at each of the subsequent lumbar punctures. The high intrathecal pressure persisted for over six weeks after the commencement of treatment—i.e., nine weeks from the onset of illness. Nine intrathecal doses of serum were given, and an autogenous vaccine was also injected. Cultures made from the fluid withdrawn on the forty-fourth day of disease grew a few colonies of meningococci after 48 hours' incubation, but the temperature was normal on the forty-fifth day, and, as no meningococci were found in the fluid from subsequent lumbar punctures, no more serum was given. The cerebro-spinal fluid, though still under increased pressure, was normal in character on the fifty-second day.

The course of the disease for about the first 80 days in hospital was thoroughly unsatisfactory. At first the child's general condition became steadily worse, and when the temperature became normal there was still no improvement. Emaciation was extreme, the pulse feeble, rapid and irregular, the head was retracted till the occiput touched the back, there was now great general rigidity, strabismus, and also incessant twitching of the face and of the right arm and leg for days on end. For 45 days nasal feeding was employed, at first to supplement nourishment by mouth, but for more than half that time it was the only method of feeding used as the patient was unable to swallow. On the eighty-eighth day after admission, 111th day of illness, he swallowed food again for the first time.

From about this time on he steadily improved; the twitching ceased, the rigidity and head retraction diminished, and nutrition improved. Concurrently the hairs on the trunk and limbs took on rapid growth, so that he was soon covered with quite a thick coat of hair, similar to that sometimes found in marasmic children, but much thicker than in any other case I have seen. After improvement set in a partial paralysis of the left side of the face became apparent. During the last few weeks of his stay in hospital the child would frequently scream, sometimes for several hours at a time, but apart from this he lay like a log in bed from morning to night, taking absolutely no notice of his surroundings.

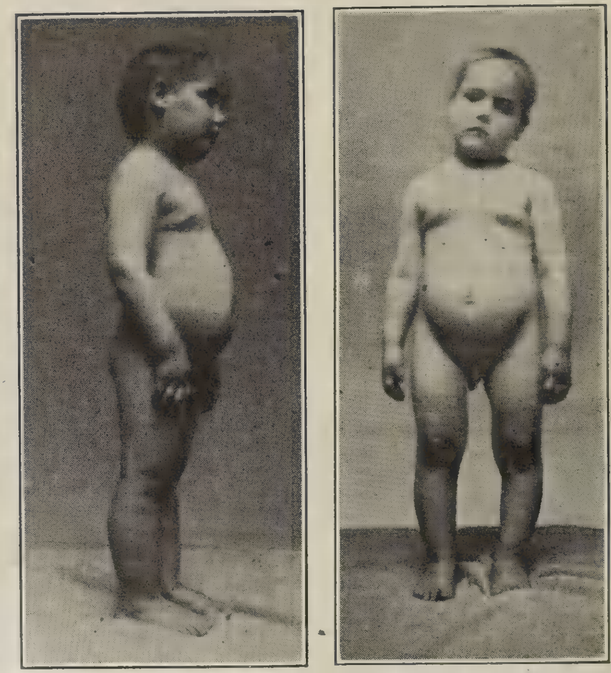


FIG. 2A. FIG. 2B.

CASE 3 (Ernest W.).—Aged 6 years 3 months. The photographs show the obesity (probably due to hypopituitarism resulting from meningitis), the tilting of the head to the left, and the rachitic bowing of the legs.

The history for the first six months after discharge is given by the mother: For about one week after going home he screamed constantly. Ten to fourteen days after discharge he pointed at something he wanted—this was the first sign of intelligence he gave. After this his mental faculties developed like those of an infant learning for the first time. One month after discharge he began to talk, two months later he was talking as well as before his illness "excepting for a stutter." He was clean in his habits from about the same date onwards. Five to six months after leaving hospital he could walk. Later he attended out-patients, and at that time he was enormously stout, presumably on account of insufficiency of the posterior lobe of the pituitary body due to the very chronic meningitis. He has now, July, 1919, entirely lost his thick coat of hair. He is still stout, though less so than before, his weight is 3 st. 11 lb. (average for a 6 year old, 3 st. 3 lb.), his height is 3 ft. 4½ in. (average for age, 3 ft. 8 in.). Hearing is normal; there is no obvious defect of sight. Mr. Hepburn reports "slight blurring of edge of disc above on temporal side, but nothing much; rest of disc normal."

He is a good-tempered child, stolid, and rather shy. A neighbour tells me he is quicker and more intelligent than a 5 year old adopted sister. He is certainly backward for his age (6 years 2 months). He cannot, for instance, count objects, although he can repeat his numbers correctly; but, on the other hand, he is capable of doing errands, and is occasionally successful in performing the "triple errand" of the Binet-Simon tests for a child of 7 years old. The day before he last attended his mother sent him to buy old potatoes, and the child recognised and refused to take new potatoes which were offered him in the shop. The paralysis of his face and the squint have disappeared, but he seldom uses the right hand and arm, which are slightly weaker than the left (probably now on account of want of use). He frequently carries his head not quite upright; the left ear is approximated to the left shoulder. The bowing of his legs noticed at the time of his admission to hospital is now extreme.

Like the first two cases described, this patient shows both the marvellous extent to which recovery may take place in an apparently hopeless case and also the persistence of high intrathecal pressure in chronic cases. If such a case were to come under my treatment now I should continue the administration of serum for a longer period. In this patient no organisms were found after the forty-fourth day of the disease, but as the intrathecal pressure remained high and improvement did not set in until after the 100th day it seems probable that meningococci persisted for some considerable time after the forty-fourth day, and were finally overcome by the resistance of the patient himself. Aaser grew meningococci from the cerebro-spinal fluid of a child with hydrocephalus more than two years and eight months after an attack of posterior basic meningitis at the age of 9 months, and he considers that hydrocephalus occurring after cerebro-spinal meningitis is really evidence of a chronic inflammatory process going on in the meninges.[7]

Treatment with pituitary extract has been commenced in the hope of improving his mental and physical development. As a rule, motor palsies disappear, as they have in this case.

CASE 4.—Mary S., aged 5 months, was admitted to the Royal Free Hospital on May 19th, 1917, about the tenth day of illness, and was an in-patient for over nine weeks. The onset of illness had been very insidious. On admission there was a bulging fontanelle, slight head retraction, and rigidity of the hamstrings. The temperature was 100·4° F. and the pulse 160. The patient was small for her age and weighed 9 lb. only. At the first lumbar puncture 7 c.cm. of blood-stained fluid was obtained containing meningococci, but after this little or no fluid could be obtained from the spinal canal (except on the seventeenth day of illness, when 10 c.cm. came out slowly), though lumbar puncture was attempted on ten occasions, the last shortly before the child's discharge. On the fourteenth day of illness head retraction was marked and bulging of the fontanelle extreme. Ventricle puncture was performed, and 35 c.cm. of slightly turbid fluid, containing great numbers of extra-cellular diplococci, was withdrawn, and 10 c.cm. of serum injected. On the sixteenth day 40 c.cm. of clear sterile fluid was withdrawn from the ventricle, and 10 c.cm. of serum injected. Next day 10 c.cm. was withdrawn by lumbar puncture as mentioned above, and 4 c.cm. of serum was injected. This was the last dose of serum given.

The temperature became normal about the nineteenth day of illness, but hydrocephalus steadily increased until there was very wide separation of the bones at the cranial sutures. Strabismus was marked, and there was much screaming, frequent vomiting, diarrhœa, and great wasting. 50 to 110 c.cm. of fluid was withdrawn at each subsequent ventricle puncture. Twenty-one ventricular punctures were performed in all, the left ventricle being tapped on each occasion, and the needle, so far as possible, passing through the same puncture hole and in the same direction with a view to causing as little damage as possible to the brain substance. After the last ventricular puncture, on the fifty-third day of illness, the puncture wound remained open, allowing a continuous escape of fluid in sufficient quantity to soak through a dressing of gauze and wool in a few hours' time. The wound did not heal for four or five days. The temperature for a few days was unsettled, but henceforth the fontanelle was level and no longer tense. The child began to improve, apparently as a result of the relieved pressure, and when discharged a fortnight later she was taking her feeds well, there was no vomiting, and she was gaining weight. Head retraction was still present.

This case was complicated by an effusion into the left knee-joint, and the knee was twice aspirated and turbid yellow fluid withdrawn. This was accompanied by pyrexia lasting about ten days.

The mother states that head retraction persisted for about two and a half months after discharge, and the child could not sit up unaided for about five months—i.e., until she was 1 year old. She did not walk well until 2½ years of age. For some months she was under treatment at St. Thomas's Hospital for rickets, and there seems little doubt that her backwardness in walking was largely due to this disease. When 1 year old she could say one or two words, but her progress in talking has been slow. On the other hand, she could sing "The Wearing of the Green" and one or two other songs with a good idea of tune before she was 2½ years of age.

When seen in September, 1919, when she was 2 years 9 months old, she would often pronounce a whole sentence clearly, though at other times she might repeatedly utter one of which not a single word was intelligible. She passed successfully nearly half the Binet-Simon tests for a child of 3 years of age. From the mother's account it appears that, though the child is now backward, her progress has been much more rapid since the improvement of the rachitic condition. Her physical development, including the shape of the head, is normal. The circumference of the head is 19¾ in., the normal for 3 years being 19 in. There was some enlargement of the radial epiphyses, and very marked bowing of the femora, the convexity forwards. Strabismus was still present. She generally fixed objects with the left eye. Ophthalmoscopic examination has not been made.

It may be interesting to compare with this a case recorded by Netter, in which chronic meningococcal meningitis in a child, aged 21 months, was complicated by blindness. Improvement in vision in this case coincided with the relief of intracranial pressure brought about by a lumbar-puncture wound remaining open and the fluid escaping into the tissues of the back.[8] Such cases suggest the possible benefit that might attach to the establishment of continuous slow drainage into the subcutaneous tissues by surgical means before permanent hydrocephalus is established. In cases where drainage is established by accident the risk of secondary infection must, of course, be considerable.

Cases of recovery after ventricular puncture are comparatively rare. Dr. Josephine Neal states that in her series of 76 cases of epidemic cerebro-spinal meningitis in children under 1 year 11 developed a block preventing the outflow of fluid from the ventricles, and 6 of these were treated by ventricular puncture, but all proved fatal. Another case treated by ventricular puncture recovered, but ther seems some doubt as to whether there was in this case a true block. As an indication of the danger of and the damage to brain substance which may result from ventricular puncture, this author quotes the case of a child of 7 months so treated, who at the age of 4 years was a helpless imbecile. But from the account given it would seem more probable that this condition resulted from the hydrocephalus itself.[1]

Fairley and Stewart also comment on unfavourable results obtained by ventricular puncture. "Ventricular puncture and decompression by trephining was performed in nine subacute or chronic cases with signs of internal hydrocephalus. All terminated fatally, but in several cases the patient's life was prolonged. It is noted that 3 out of 19 cases of internal hydrocephalus recovered spontaneously."[illegible]

The occurrence of a synovial effusion into the knee-joint in this case is of interest. I believe it is rare for the joint to be attacked in infants. Osler and Still state that a joint affection when it occurs in infants is generally periarticular, and, according to Rolleston, it is usually the joints of the hands and feet that are affected in infants.

CASE 5.—Stanley C., aged 4 months, was admitted to the Royal Free Hospital on June 28th, 1917, on the third day of his illness, and was an in-patient for 36 days. On admission he had a temperature of 104·2°, pulse 160, respiration 80, tense bulging fontanelle, very slight rigidity of the neck, and occasional twitching of the limbs. Lumbar puncture revealed a turbid fluid with many meningococci.

This case showed a recrudescence. The temperature remained practically normal from the eighth to the twelfth day in hospital, cocci had disappeared from the fluid and the administration of serum was stopped. From the thirteenth to the seventeenth day pyrexia was again present, and cocci reappeared in the fluid. Twenty lumbar punctures were performed, but four were dry. Thirteen doses of serum were given. Normal fluid was obtained under normal pressure on the twenty-first day. The child was discharged apparently recovered.

He was seen again in June, 1919, when he was 2 years and 4 months old. He now has severe rickets with much bowing of the legs. His weight is 1 st. 9 lb., instead of the normal 2 st. 1 lb. He learned to walk after the age of 2 years, and can now only say a few single-syllable words. He understands simple commands and appears fairly bright. He comes from a poor home, where there is often insufficient food, and is the eighth child of the family, of whom only one other is surviving, and it seems probable that his general backwardness is due to causes other than the meningitis.

In this case, as in Case 3, more serum appears to have been indicated at first. Possibly it would be a safe rule always to give at least two doses of serum after meningococci have ceased to be found in the cerebro-spinal fluid, as thereby one might lessen the chance of a recrudescence, which presumably is always due to the survival of a few organisms in some part of the central nervous system.

Case 6.—James D., aged 4 months, was admitted to the South Western Hospital, Stockwell, on Sept. 24th, 1916, and was an in-patient for 57 days. He was certified as a case of scarlet fever, and had a history of four days' malaise. On admission there was nothing to suggest scarlet fever, excepting a flushed skin and slight pyrexia. There was constipation, but no vomiting or rigidity of the muscles of the neck or limbs, and the fontanelle was level. On the tenth day of illness the child lay with his head slightly retracted, and next day, though tension at the fontanelle was still normal, there was in addition slight rigidity of the cervical muscles and hamstrings. Lumbar puncture was performed (eleventh day of illness); 6 c.cm. of turbid fluid were withdrawn under normal pressure, and the same quantity of serum was injected. A very few intra- and extra-cellular meningococci were found in the fluid. The fontanelle was not tense at any stage of the illness. Ten successful lumbar punctures were performed (on several occasions no fluid could be obtained), and seven doses of serum given, the last on the twenty-fifth day of illness. Latterly, the child appeared to be growing worse in spite of the serum and consequently no more was given, although meningococci were found in the fluid withdrawn on the thirty-first day. About this stage diarrhœa supervened and rendered the outlook still more unfavourable. On the thirty-fourth day the injection of vaccine was begun. Three different vaccines, prepared from three different strains (type unknown) were given, one dose of each, followed up by an autogenous vaccine. On the thirty-sixth day the fluid appeared practically normal, although the child's condition was growing worse, and two days later there was present the so-called "undulating type" of respiration (respiration resembling the Cheyne-Stokes type, except that no periods of complete apnœa occur), and the pulse was very feeble, although the fontanelle remained level. However, from the fortieth day onward improvement was steady and rapid, and on the forty-ninth day all rigidity had disappeared, and the child was obviously thriving.

The boy's general development, mental and physical, is now (September, 1919) excellent. He began to walk before he was 1 year old and to talk at about 1½ years, and is a bright, intelligent little chap of 3.

This case is of interest for several reasons: (1) It came under observation early, apparently during the pre-meningitis stage, but was not diagnosed until the eleventh day of illness, the first day on which there was any rigidity of the cervical muscles. It is a good illustration of the difficulty of early diagnosis in infants. (2) It was atypical in that throughout there was no obvious increase in intracranial pressure—I believe a very unusual phenomenon. Dr. Neal reports absence of a bulging fontanelle in 5 out of 76 cases.[1] (3) Serum treatment with the Lister polyvalent serum produced no visible improvement; very possibly the strain of meningococci was different from that present in the other cases. Unfortunately, the type was not ascertained in any case belonging to this series. (4) The child abruptly began to improve on the fortieth day (although undulating respiration had supervened), just before the injection of the first dose of autogenous vaccine, possibly, of course, as a result of the strain of organisms in the third dose of stock vaccine. (5) Improvement, when it began, was much more rapid than in mos of the cases of the series in whom treatment wa commenced late. Possibly the rapid improvemen was associated with the previous absence o increased intracranial tension.

Case 7.—Ernest S., aged 7 years, was admitted to th Royal Free Hospital on March 17th, 1917, on the secon day of illness, and was an in-patient for about fiv weeks. The onset of the disease was sudden, accompanied by vomiting and convulsions, and on admissio he was semi-conscious and presented a typical pictur of cerebro-spinal meningitis, with marked head retraction. He had herpes on the lips and developed similar eruption on the cheek and forefinger. N organisms were found in the direct films, but mening cocci were grown in culture. Ten lumbar puncture were performed and nine doses of serum were give The patient was rational, and fluid was sterile an nearly clear on the sixth day of illness, but, as th temperature had not settled, treatment was continue for a few days longer. A serum rash appeared on th eleventh day. Rigidity of the neck had almost dis appeared by that time, and he made an uninterrupte recovery. He is now 10 years old, and his teache states that his intelligence is normal for his age.

Miss Lowry reports that he has very slight deafness the middle-ear type. He has adenoids and the righ tympanic membrane is scarred. His mother says tha after discharge he complained of headache, and sti does so at times. It is hoped that the early removal his adenoids will cure the headache.

This case presents a fairly typical picture cerebro-spinal meningitis in an older child at a age when early diagnosis is as a rule much easie and shows the increased rapidity of recover usually consequent on early treatment.

Case 8.—John J., aged 7 years. This case shoul perhaps, not be included in the series, as, although or or two pairs of diplococci were found in direct filn made from the slightly blood-stained fluid obtained the first lumbar puncture, no meningococci were grow in cultures. However, he had meningismus accom panied by well-marked optic neuritis, and made a uninterrupted recovery under treatment with lumba puncture and intra-thecal administration of ant meningococcal serum. Many observers record a sma percentage of cases which are almost certainly cases meningococcal meningitis, but in which the diagnos has not been clinched by growing the organisms fro the cerebro-spinal fluid, and consequently I inclu this case, though I recognise that the diagnosis is op to doubt.

This child is now (July, 1919) a quick, healthy-looki boy of 10, and Mr. Hepburn reports: "Vision in ea eye 6/6, discs perfectly normal and a good colour a well defined." It was not possible to test his field vision. Different observers have placed the inciden of optic neuritis at very different figures. Rollest states that it is usually regarded as infrequent, a that it is especially related to the septicæmic type infection,[10] whereas Fairley and Stewart place it 41 per cent.[11]

Conclusions.

The knowledge which I, personally, have deriv from following up these patients is that no matt how hopeless a chronic case of cerebro-spin meningitis may seem, the patient may with adequa treatment make a complete, or almost complet recovery. So far as can be judged at present, a the children described above should develop in useful members of society. I ascribe these go results largely, as already stated, to the continuan of lumbar puncture as long as the intrathec pressure remained excessive.

To summarise results. Of the 8 cases, 5 (Cas 1, 2, 6, 7, and 8) are now healthy, well-develop children with normal mental faculties, althou suffer from a disability—i.e., deafness (Case 1) d strabismus, stated by the mother to date from e meningitis (Case 2). As an indication of the verity of the disease in Case 1 it will be remem- red that as late as the forty-eighth day he was still mi-stuporous and unable to sit up. The same int is illustrated in Case 2 by the photograph d the fact that he required nasal feeding for over x weeks. Case 6 was also a severe chronic case, t in this instance the intrathecal pressure was ver high.

The three remaining patients (Cases 3, 4, and 5) e mentally backward, but it is difficult to say to hat extent this is due to the rachitic condition om which they have all suffered. In Case 5 both e physical and mental backwardness may, I lieve, be wholly ascribed to rickets, whereas th diseases were probably factors in the produc- on of the present mental condition of the other vo cases. In Case 3 treatment was not begun ntil the twenty-third day, the child was unable swallow for over three weeks, and at the end of ve months in hospital he appeared demented, yet ow the only after-effects are some backwardness, diposity, and a very slight localised muscular weak- ess, probably now merely the result of disuse. In ase 4 there was internal hydrocephalus and l ventricular punctures were performed, but the nly after-effects now apparent are some back- ardness and strabismus.

I regret that I have not had the opportunity of sting this method of treatment sufficiently often obtain statistics thereon, and it is, of course, npossible to generalise from such a small number f cases, but in view of the striking recoveries escribed above it would seem worth while giving rolonged lumbar puncture (in addition, of course, the administration of anti-meningococcal serum) more extensive trial in chronic cases with a ersistently high intracranial tension, as, though oubtless practised by some, it is not, I think, the ethod of treatment in general use.

Permission to publish the cases was kindly given y Dr. Foord Caiger, Dr. J. W. Carr, Dr. Hazel hodak, Dr. A. Phear, and Dr. P. W. Saunders, nder whose charge the patients were admitted to ospital. I should also like to express my indebted- ess to Mr. Hepburn for his kindness in examining he children's eyes; to Dr. Eleanor Lowry, who xamined the ears; to Dr. Mary Schofield, and Dr. athleen Armstrong, who carried out the examina- ion of the cerebro-spinal fluid; to Dr. Nora Crow, ho spent much time and trouble in obtaining the hotographs illustrating this paper; and to Dr. hodak, who has very kindly assisted me in ollowing up Case 4, which was admitted to the oyal Free Hospital under her charge. My special hanks are also due to Dr. J. W. Carr, who was, I elieve, the first to point out the relationship etween the posterior basic meningitis of infants nd epidemic meningitis,[12] for his encouragement, nd the interest he has shown in this investigation.

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ŒDEMA AS A SYMPTOM IN SO-CALLED FOOD-DEFICIENCY DISEASES.

BY A. DOUGLAS BIGLAND, B.A., M.D., M.R.C.P.,
HONORARY CAPTAIN, R.A.M.C.; HONORARY PHYSICIAN, DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL; LECTURER IN CLINICAL MEDICINE, UNIVERSITY OF LIVERPOOL.

THROUGHOUT the whole world, at different times and in many diverse places, epidemics have broken out, having as their main feature a more or less extensive dropsy. As might be supposed, these epidemics occurring so diffusely have been described independently by many observers. Having observed one such epidemic on a small scale, it appeared to me that a correlation might be made between this and other similar outbreaks with the view to determining, if possible, a common ætiological factor, or, at least, to make a short comparative study of such conditions.

It is proposed first to give a brief account of the various epidemics, and then discuss their possible common origin.

I. *Œdema occurring in Turkish Prisoners of War in Egypt.*

In August, 1916, I was appointed one of the medical officers at a prisoner of war hospital in Cairo. The prisoners consisted mainly of Turks with a sprinkling of Arabs. Some of them were admitted direct from the various fronts where they had been captured, while others had been stationed for a longer or shorter period in one or other of the big prison camps in the Cairo district.

Almost immediately certain outstanding features among a proportion of the cases presented themselves. 1. Certain cases died apparently from dysentery, which when examined post mortem revealed very slight intestinal lesions; cases which, in the vivid language of the fifth year medical student, should not have died. So marked was this that one had recourse to a metaphysical explanation based upon Mahomedan ideals and the fatalism of the East. 2. The great emaciation presented by some of the patients resembling nothing so much as the appalling pictures indelibly associated in one's mind with Indian famines. 3. The extraordinary degree of anæmia noticed especially in malarial cases. Some of these had a red cell count of only a little above 1,000,000 and a very low hæmoglobin percentage. 4. The presence of œdema varying from a slight pitting about the shins to a condition of general anasarca involving all the serous cavities.

It was supposed after further observation that these striking facts could be explained on the assumption that we were dealing with ordinary tropical pictures of disease aggravated by a common factor underlying them all. The above conditions having been brought to the notice of the headquarters staff, Brevet Major P. Manson-Bahr was detailed to study the matter. In this work I assisted him.

It was found that a few of the cases were suffering from malignant malaria, but the cachexia was so extreme that one felt that this was not the only cause. Then it was thought for some time that beri-beri might be the true diagnosis. In fact, certain observers diagnosed the cases as such. But upon further observation it was found that there were no heart symptoms and that there was no definite neuritis. It is true that some of the cases presented absence of knee-jerks, but this could be explained by the general asthenia. Also the vague pains and tenderness in the legs noted from time to time were in all probability of psychic origin. In fact, the condition only resembled beri-beri in the presence of œdema. It was remarked at the time that the only known clinical picture resembling this was that of so-called "epidemic dropsy" described in India.

In the autumn of 1916 pellagra was first noticed among the Turkish prisoners. Immediately on this discovery it was felt that the œdema must have some food deficiency as its explanation. This will be referred to later in the general discussion.

I have full notes on 24 of the œdema cases before the outbreak of pellagra. The main features are set out as follows:—

I. *Extent of the Œdema.*

General anasarca, including serous cavities	8	Legs and face	4
Feet and legs	11	Legs and sacral region	1

II. *Previous Dysentery or Malaria.*

Malaria only	3	Both malaria and dysentery	8
Dysentery only	10	Neither malaria nor dysentery	3

III. *Anæmia.*

R.B.C. 1,500,000 and below ...	4	Anæmia nil or slight	17
R.B.C. 1,500,000–2,500,000 ...	3		

IV. *Variation in Knee-jerks.*

Normal	16	Sluggish	3	Absent	5

Of these 24 cases 8 died, the remainder being discharged from hospital as cured. Later it was attempted to trace these 16 "cures" with the view to seeing how many had developed pellagra. All could not be found, but 4 had developed in the meantime true pellagra.

Post-mortem examinations were performed on the 8 fatal cases (for three of these I am indebted to Major Manson-Bahr). The results may be summarised as follows: Bacillary dysentery lesions in the intestines were present in all 8 cases. Ascites was noticed in 5, pleural effusion in 3, and pericardial effusion in 1 case. All the organs appeared small; the heart showed the condition known as "brown atrophy" in 7 of the cases. Only in 1 was there a fatty liver; in others this organ was small. Tuberculous bronchial glands were present in 2 cases.

Œdema has not hitherto been recorded as a clinical feature of pellagra, so it is fitting that the following facts concerning its incidence in these cases should be noted. 64 cases of true pellagra were studied from many aspects; it is only my intention here to deal with the one symptom—œdema.

V. *Incidence of Œdema in Pellagra Cases.*

Œdema observed	36	No œdema observed or mentioned in history	21
Œdema in history only	7		

VI. *Extent of the Œdema* (36 cases).

General anasarca	7	Legs and face	0
Legs and feet	29	Legs and sacral region	0

VII. *Incidence of Previous Malaria and Dysentery.*

Malaria only	1	Neither malaria nor dysentery	30
Dysentery only	25		
Malaria and dysentery	8		

VIII. *Time Relations between Onset of Œdema and Pellagrous Skin Manifestations.*

Total pellagrins with œdema	43	Œdema synchronous with rash	15
Œdema before rash	24	Œdema after rash	4

Careful blood counts were made on 25 cases:—

IX. *Blood Pictures.*

R.B.C. 1,500,000 and below ...	2	R.B.C. up to 3,500,000	9
R.B.C. up to 2,500,000	2	R.B.C. above 3,500,000	12

The absolute leucocyte count in the majority approximated to normal, but a relative lymphocytosis was present in some. Of the 25 cases, 17 had a lymphocytosis of over 30 per cent. and 10 over 40 per cent.; the highest count was 60 per cent. Eosinophile cells showed on the average 1·5 per cent., the highest count being 6 per cent. The colour index in 14 of the cases was normal, in 5 below 1 and in 6 higher than 1. No organic disease of the heart, no kidney disease, no marked diuresis, and no bradycardia were observed in these cases. Diarrhœa, of course, was common to all, and the blood pressure of the pellagra patients was found to be very low. Of these 64 pellagra cases, 25 died.

This, then, is a brief account of the œdema epidemic as it occurred among Turkish prisoners of war during the autumn, winter, and spring of the years 1916–17. The question of pellagra itself will be dealt with in a subsequent paper.

II. *War Œdema in Europe.*

This condition was first observed in January, 1917, among prisoners of war camps and in large towns throughout Germany. Its onset was apparently sudden, with œdema occurring as a rule in the feet and legs, but occasionally in the thighs and trunk. In more than one-half some degree of facial swelling was noticed; in one-sixth there was œdema of the hands, and in one-ninth ascites was also present. There were no cardiac symptoms, except marked slowing of the pulse, and the urine contained no albumin. The blood showed a reduction in R.B.C. of from one to two million. Diarrhœa was fairly common. It appears that as soon as the patient was put to bed a marked diuresis occurred and the œdema rapidly disappeared. Remissions and recurrences were fairly common.

War œdema then appeared in Vienna with great suddenness. Schiff[1] drew attention to the similarity of this condition and beri-beri and other diseases depending upon a failure of vitamines. Baucke[2] described a series of cases where the œdema was only on the face, and in extreme cases on the neck and backs of the hands. This he attributes to the sun's rays, which were very intense at the time. Bradycardia again was a pronounced feature.

Schittenhelm and Schlecht[3] observed more than 200 cases of war œdema in men from 19 to 33 years of age. In these bradycardia was associated with an extremely low blood pressure. All the men were in a state of malnutrition, as shown by complete absence of fat and a considerable reduction of albumin, as shown by the very low concentration of the serum on refractometric examination of the blood.

The disease was then remarked in the reconquered Italian territory. Cases were described by Pighini.[4] No men in the prime of life were affected, and the food conditions were very bad.

In Bohemia the condition was studied by von Jaksch.[5] In 1917 "hunger œdema" was discovered in 22,842 persons, of whom 1028 died. He found in the blood a lymphocytosis to be not uncommon. Jansen[6] found that R.B.C. varied from 1·5–4 millions, that the colour index was often higher than 1, and that there was a relative lymphocytosis of 30–55 per cent.

His[7] has noted that war œdema occurred in Turkey among starving persons and convalescents, and also as an independent disease.

Another very important point observed in some of the cases was the presence of certain skin manifestations. Petenyi,[8] working at Budapest, in 106 cases found only 3 with normal skins. In all the rest the skin was extremely dry, and presented more or less considerable desquamation. Reach[9] noticed much pigmentation of the scrotum in his cases.

As regards the ætiology of war œdema many explanations have been advanced. It appears that men were more affected than women, and young children not at all. By far the most accepted explanation of the condition is one based upon a food-deficiency factor. Some workers regard previous dysentery, typhus, relapsing fever, and tuberculosis as a cause, but such are in a small minority. Von Jaksch[5] states that the disease appears whenever the calories in the diet fall below 1400, and that a deficiency of carbohydrates and fat is the cause. In August, 1917, when the affected districts received an adequate supply of potatoes war œdema began to diminish. Most workers agree to a great diminution of albumin in the body in this disease, together with marked wasting of all the organs, including endocrine organs, in post-mortem examinations.

Regarding the actual cause of the œdema itself two theories are brought forward: (1) that toxic products of albuminoid metabolism may damage the endothelial lining of the blood-vessels, and so cause œdema; or (2) that it is due to a calcium deficiency which apparently increases the permeability of the vessel wall.

III. *Epidemic Dropsy.*

This condition was first described in India during the cold season of 1877–78. In the following summer it disappeared, but broke out again in the cold season of 1878–79. This second outbreak was spread over a wider area, the first having been observed only in the region of Calcutta. Again, in the cold months of 1879–80 the epidemic was observed, and this time over a still wider area. It vanished during the hot weather of 1880. About the same time isolated outbreaks occurred elsewhere in India and a similar condition appeared in Mauritius.

Apparently the subject was then forgotten, and no further outbreaks were recorded for 20 years. In 1901 cases of epidemic dropsy again made their appearance in Northern Calcutta. These were pronounced to be the same as had occurred in previous epidemics. In 1902 there was an outbreak in Bengal, and again another in Calcutta in 1908–09. This last was fully reported upon by Major Greig,[10] to whose careful observations much of the present note is due.

The initial symptoms are pyrexia, gastro-intestinal disturbances, paræsthesiæ, and deep-seated pains throughout the body. Dropsy was an initial, or, at all events, an early symptom. It was noticed chiefly in the lower limbs, occasionally in the arms, body, and serous cavities, and rarely in the face. Vomiting and diarrhœa were common early symptoms, and dysentery sometimes occurred during the course of the disease. In a considerable proportion of the cases, according to Macleod,[11] the skin surfaces became erythematous or affected with an urticarial, scarlatinal, or morbiliform rash. Eczema, desquamation, and excoriation were sometimes observed later. Anæmia was a constant feature, so much so that in Mauritius the disease was known as "acute anæmic dropsy." Greig[10*] and Megaw[12] found an increase in the lymphocytes, both relative and absolute.

Greig, in his conclusions on the Calcutta outbreak in 1908–09, states:—

> 1. That no causa morbi is to be found in the blood, œdematous fluid, excreta, &c. of epidemic dropsy cases.
> 2. That the features of epidemic dropsy very closely resemble those of "ship beri-beri."
> 3. That the evidence points to epidemic dropsy being non-infectious.
> 4. That there is evidence to show that epidemic dropsy is a nutritional disease, and is brought about by a one-sided dietary.
> 5. That the two severe outbreaks of epidemic dropsy in Calcutta and Bengal ...... have been correlated with a sustained high price of food grains during the period, and the cessation of these epidemics has synchronised with the fall in the price of food.

IV. *Ship Beri-beri and Scurvy.*

Ship beri-beri might be described as beri-beri without neuritis. Thus Nocht,[13] working in Hamburg, and the Norwegian Ship Beri-beri Committee,[14] state that symptoms of neuritis of the limbs are comparatively rare. Nocht only found neuritis in 4 of his 34 beri-beri ships, while the Committee only observed it in 4 out of 57 ships. Holst[15] agrees with Nocht that ship beri-beri is a food disease "showing a marked congruence with scurvy."

After the occupation of Rangoon in 1826 Waddell[16] noticed that the troops were affected with scurvy. He wrote: "In all the worst cases the feet became œdematous, and however apparently mild the other symptoms might have been, this affection was an almost certain prognostic of approaching anasarca, hydrothorax, and death." He also adds that diarrhœa was a common symptom in these cases.

Norman Chevers[17] apparently also was acquainted with a malady similar to epidemic dropsy and the above conditions. To this disease he gave the name "Morbus Bengalensis." He describes it thus: "Throughout his daily work, the powerful influence of this condition of chronic semi-starvation, not merely in the poor Bengali himself but throughout his entire race and generation, is constantly obtruding itself upon the physician who says: 'This man's constitutional malady is malnutrition, anæmia, asthenia, complicated with fever, dysentery or what not.'" As Greig well says: "If we replace Chevers's 'what not' with the symptoms swelling of the feet and breathlessless, a fairly complete description of the features of epidemic dropsy results."

V. *Œdema in East Africa.*

This section of the paper is supplied by E. S. Stubbs (M.D., Ch.B., B.Sc., late Capt., R.A.M.C.). Unfortunately, his important communication is somewhat long, so I have taken the liberty of abstracting it. He describes a condition diagnosed beri-beri which was prevalent among native troops in Jubaland (on the northern border of British East Africa). The diet of these troops had been at times without fresh food, and consisted chiefly of polished rice. In 1917 a paper on cases of beri-beri in a barrier hospital in German East Africa was circulated, but apparently the general opinion was that the disease was ankylostomiasis and not beri-beri at all. Captain Stubbs met a medical officer who was himself convalescent from the disease.

Apparently, among European troops in East Africa there were no cases of unexplained œdema except the above-mentioned cases of so-called beri-beri. "Most of my work," writes Captain Stubbs, "was with native carriers, chiefly Kavirondos and Kikuyus. I was at once struck by the great number of cases showing anæmia and persistent œdema of gradual onset. Examination of the urine often showed albumin, sometimes a trace, sometimes a large quantity. I came to consider that the great majority of these cases were ankylostomiasis." The reasons adduced for this conclusion may be summarised as follows: (1) The great amount of ankylostome infection present as gauged by stool examinations and by post-mortem findings; (2) most of the patients, though not all, improved considerably under anthelmintic treatment. The arguments against a food deficiency disease (beri-beri) were: (1) The diet which the patients had been enjoying for some weeks was regarded as sufficient to make good any former deficiency; (2) neuritis was not a prominent symptom, though the complaint of pains in the limbs, especially at night, was very common.

When shown photographs of pellagrins Captain Stubbs stated that the appearances did not seem unfamiliar to him, though he would not like to lay too much stress on this point. He concludes his remarks as follows: "The outstanding fact in the East African native hospitals was this, the death-rate was high. For months in 1917 there were 8–25 deaths a day in 1000-bedded hospitals. Yet in the majority of these cases there was no dramatic illness to account for death, unless it might be a terminal broncho-pneumonia. The patients commonly had no raised temperature and no definite dysentery, just a chronic diarrhœa of perhaps three to four motions a day. They were usually very anæmic, and frequently had œdema of the feet. Their food did them no good; they became emaciated and died. We regarded the deaths as due to chronic dysentery and helminth infection, especially ankylostomiasis; often they were the subjects of chronic malaria as well. Post mortem frequently chronic ulceration of both bacillary and amœbic types were seen. Another feature was the presence of excess of fluid in the pericardium and pleural cavities, with which there was associated a remarkable smallness of the heart and kidneys."

Factors in Causation.

Having now described the diverse epidemics in which dropsy was the prominent symptom, there yet remains the task of elucidating, or at any rate correlating, the facts disclosed. I propose to discuss the various factors that have been mentioned from time to time as causing the above conditions.

1. *Malaria.*—Manson,[18] when discussing malarial cachexia, says: "As a consequence of defective nutrition from prolonged anæmia and recurring fever, the muscular tissue of the heart in chronic malaria may degenerate, the ventricles dilate, and in time the lower extremities become œdematous." Hulse[19] is of opinion that epidemic dropsy is nothing but malarial cachexia.

Against this view I advance the following arguments. Malaria was not mentioned by other observers as a causative factor, and yet the picture of malarial cachexia must have been an extremely common one to most, especially the workers in India. To my mind, it is inconceivable that this should have been overlooked, were it indeed present. It is not probable that the outbreaks of epidemic dropsy in German towns, for example, were due to such a factor. Again, not all the cases had anæmia, which is a constant in malarial cachexia. Moreover, I have notes of five cases of severe malaria anæmia who never showed any œdema whatever. I append their blood counts:—

Case 1:	Hb. 50 per cent.:	R.B.C., 1,500,000.
,, 2:	Hb. 70 ,,	R.B.C., 2,800,000.
,, 3:	Hb. 60 ,,	R.B.C., 1,500,000.
,, 4:	Hb. 60 ,,	R.B.C., 1,400,000.
,, 5:	Hb. 60 ,,	R.B.C., 1,700,000.

Again, in my own series of cases it will be seen that of the 24 dropsy cases only 11 showed evidences of malaria, and out of 64 pellagrins only 9. It should be stated here that malaria was diagnosed in the fatal cases by the post-mortem appearances of the spleen and their clinical condition before death, while in the living the diagnosis depended upon blood examinations, presence of excess of large mononuclear cells, and from typical attacks of pyrexia, &c. In my opinion, therefore, some of the cases of œdema may have been due to malarial cachexia, but the majority were not.

2. *Dysentery.*—This condition is very much more difficult to exclude than malaria, for the reason of its extreme frequence in connexion with epidemic dropsy. As far as one can see in all the epidemics throughout the world gastro-intestinal symptoms of all grades of severity were almost constantly associated with the œdema.

In my own series of 24 dropsy cases 18 had dysentery, and of 64 pellagrins 33 showed evidence of the condition. The majority of them were of the bacillary type. In Manson's book on Tropical Medicine I can find no reference to œdema as a sequel of either type of dysentery, though Davidson[20] mentions dropsy of the legs as a result of the disease. It will be granted, I think, that this statement is not tantamount to saying that epidemic dropsy outbreaks are caused by dysentery, at most it is an association only. The reason of this coincidence can be explained in three possible ways: (1) Epidemic dropsy occurs frequently in those places where dysentery is also common; (2) both diseases are associated with periods of food stress, as, for example, during wars and famines; (3) if a man who has been starved, at any rate as regards certain articles of food, then develops dysentery, his system is immediately drained of most of its nourishment, and at the same time he is starved in hospital for therapeutic reasons. At first he was only a candidate for one of the food deficiency diseases; now he is fully qualified. That epidemic dropsy and dysentery are associated cannot be denied, but that the latter is the cause of the former is not proven.

3. *Scurvy.*—Except in ship beri-beri this disease appears to be a rare event in epidemic dropsy. In the Cairo cases I have notes of two prisoners who had bleeding gums, but it is doubtful whether they were really suffering from scurvy at all. In any case neither of them showed any œdema. It is only fair to state, however, that the late Colonel F. M. Sandwith, when he came to visit the Prisoners of War Hospital in Cairo, was of the opinion that the œdema was scorbutic in origin. With every respect to the memory of this great worker I must say that I could find no evidence whatever for his statement.

4. *Ankylostomiasis.*—It is evident that Captain Stubbs, in his observations on the East African outbreak, is of the opinion that his cases of epidemic dropsy had ankylostome infection as an ætiological factor. Possibly in his cases this was true, but in the majority of outbreaks no mention of intestinal parasites is made. In my own cases not one showed evidence of ankylostomiasis, though the worms in post-mortem cases and the ova in the stools of the living were searched for repeatedly with every care. The absence of eosinophilia in these cases also is against such an infection. I think it may be truly said that in the vast majority of cases ankylostomiasis is not the cause of epidemic dropsy.

5. *Beri-beri.*—Without doubt throughout the world, even by experienced observers, the diagnosis of beri-beri has been confused with that of epidemic dropsy. The class of person commonly

attacked and the associated œdema are facts which apparently lead many into the trap. In my opinion, the absence of true neuritis and the comparative rarity of heart attacks in epidemic dropsy should point to a true diagnosis. That the two diseases are related may be allowed, but that they are separate clinical entities, so far as our present knowledge goes, is practically certain.

6. *Epidemic dropsy a food-deficiency disease.*—There yet remains the discussion as to whether epidemic dropsy is not, after all, a food-deficiency disease. Before dealing with this section I should like to make it quite clear that I regard all the above-described epidemics as similar in constitution and origin. Of so much there can be no doubt. When we consider the œdema, and the absence of renal or cardiac causes to explain it; when we notice the absence of neuritis, the presence of diarrhœa, emaciation, anæmia, and relative lymphocytosis; when we find the curious wasting of all the organs post mortem and try to explain the seemingly causeless deaths, we must be struck by the fact that we are here dealing with a definite clinical entity. As in clinical signs and symptoms so in outward circumstances do we notice the same similarity. Whenever there are wars, famines, and long voyages in ill-equipped ships; wherever persons are housed together under relatively bad conditions, as in asylums and prisons; wherever the population lives on a minimal or one-sided dietary liable at times to be reduced to a fraction above nothing, there we have the conditions for the development of food-deficiency diseases and there we have epidemic dropsy.

Epidemic dropsy and pellagra.—Two matters alone remain for discussion. Firstly the relation between epidemic dropsy and pellagra. To the best of my knowledge, in none of the epidemics of pellagra was œdema mentioned as a symptom of the disease. In Italy pellagra has decreased to a remarkable extent, while epidemic dropsy has made its appearance. Among Turkish prisoners of war in Egypt the pellagra epidemic was preceded by the epidemic of œdema, and even the pellagrins themselves in many cases showed dropsical symptoms. The presence of skin eruptions in some cases of war œdema in Europe is of great interest in this connexion. When I examined the Armenian refugees at Port Said, many months after the pellagra outbreak there had ceased, I was unable to find any "relics" of the disease at all until I happened upon a girl with marked œdema of the legs; on looking up the records I found that she had had pellagra in the last outbreak. Frequently, while in Egypt, I said to myself, "Europe will be full of pellagra." As a matter of fact, it was full of war œdema.

The Mechanism of Œdema Production.

The second matter requiring attention is the exact mechanism of œdema production in these cases. I mention three possible explanations. 1. In cases that die of epidemic dropsy there is found marked wasting of all the organs, even of the heart. The individual in such cases must have been living on his own body protein. It is suggested that toxic products of albuminoid metabolism damage the endothelial linings of the vessels, thus giving rise to œdema. 2. That the œdema is due to a deficiency in calcium salts. 3. Recently much attention has been directed to the effects of starvation on the ductless glands or endocrine organs. The Committee of Inquiry into Pellagra among Turkish Prisoners of War in Egypt[21] advanced the theory that many of the symptoms of pellagra are due to adrenal insufficiency. The close similarity between this and Addison's disease is certainly evidence in favour of the theory. More recently most interesting work has been done by McCarrison[22] on the pathogenesis of deficiency disease. By starving birds and also by feeding them on vitamine-free diets he found a similar result—viz., that all the endocrine organs atrophied except two: the pituitary remained the normal size, while the suprarenals were markedly hypertrophied. Some of the birds showed symptoms closely resembling those of war œdema. McCarrison states that "œdema has invariably (100 per cent.) been associated with great hypertrophy of the adrenal glands; 86 per cent. of all cases having great hypertrophy of these organs had œdema in some form." Again, "the œdema of inanition and of beri-beri is believed to be initiated by the increased intracapillary pressure which results from the increased production of adrenalin, acting in association with malnutrition of the tissues." In passing it is interesting to note that "œdema of the auriculo-ventricular junction" was found in these cases. This may be a possible explanation of the bradycardia in some of the war œdema cases.

It is conceivable, therefore, from the above considerations that epidemic dropsy is a condition due to affection of the suprarenal glands as a result of inanition arising from starvation, complete or partial. It may be that the suprarenals hypertrophy at the expense of the other endocrine organs, and by their increased function give rise to dropsy. Possibly, also, this hyperactivity may in time give place to a suprarenal insufficiency as exophthalmic goitre gives place to myxœdema. This second condition may be pellagra.

Whatever the true explanation may be, it is extremely probable that food deficiency, together with disordered function of certain endocrine organs, play a large part in the causation of epidemic dropsy and pellagra.

In conclusion, I must thank Lieutenant-Colonel P. S. Vickerman, late O.C. No. 2 Prisoners of War Hospital, Cairo, for his unfailing kindness and assistance in the making of these observations.

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THE LATE MR. J. S. TURNER.—John Sidney Turner, J.P. for the County of Kent and for many years chairman of the Kennell Club, died on Jan. 16th at the age of 76. He received his medical education at Guy's Hospital, and qualified by taking the M.R.C.S. Eng. and the L.S.A. in 1864. After holding a house appointment at Guy's he subsequently became prosector of anatomy at the Royal College of Surgeons of England, afterwards becoming consulting surgeon to the Norwood Cottage Hospital. He was a Fellow of the Linnean Society, a member of Council of the Lister Institute of Preventive Medicine, and a Fellow of the Royal Society of Medicine. Mr. Turner, who was editor of the "Kennel Encyclopædia," was well-known in dog-breeding circles as judge, referee, and exhibitor

THE TREATMENT OF CHRONIC GONORRHŒAL RHEUMATISM BY VACCINES GIVEN INTRAVENOUSLY.

BY ARCHIE R. FRASER, M.D. ABERD.,
LATE OFFICER IN CHARGE VENEREAL DEPARTMENT, —— GENERAL HOSPITAL; LATE OFFICER IN CHARGE GONORRHŒA WARDS, —— WAR HOSPITAL;
AND
A. G. B. DUNCAN, M.D. ABERD.,
LATE OFFICER IN CHARGE GONORRHŒA WARDS, —— WAR HOSPITAL.

UP to the present the accepted view has been that a vaccine is of use in only one disease. In 1915 Sir Almroth Wright,[1] the greatest pioneer of specific therapy, said:—

> All of those who have had experience with vaccines will have seen cases where therapeutic effects, lying quite outside the range of the particular vaccine employed, and therefore, as we thought, not quite creditable to science, have been obtained with vaccine therapy.

In March of this year, going much further, he says[2]:—

> I confess to having shared the conviction that immunisation was always specific. ...... Presumptive evidence of collateral immunisation began gradually to filter into our minds. ...... Hints are conveyed to us that there may exist a useful sphere of application for collateral immunisation; and that such sphere may, perhaps, be found in those cases where the infection is of very long standing. ...... We should discard the confident dogmatic belief that immunisation must be strictly specific. ...... We should proceed on the principle instead that the best vaccine to employ will always be the vaccine which gives on trial the best immunising response against the microbe we propose to combat.

It is well known that when a patient suffers from two pyrexial diseases, such as measles and scarlet fever, at the same time, his symptoms are not a summation of the two unless we suppose each disease to be exhibiting only half its average degree of severity. Again, an existing disease may be modified by an intercurrent malady. For instance, on several occasions we noticed in the gonorrhœal patients in a military hospital that a relapse of malaria, with a hyperpyrexia and the parasites demonstrable in the blood, dried up the urethral discharge very quickly—much faster than ordinary treatment measures. Usually the discharge reappeared shortly after the subsidence of the fever, but Culver[3] has described a case of acute gonococcal urethritis which was cured spontaneously by a malarial relapse lasting four days.

During the influenza epidemic last winter some of our cases of chronic gonorrhœal arthritis became victims. These cases had been bedridden for months, and were showing no response to treatment, in spite of the fact that all the most hopeful lines had been tried on them. We noticed that during and for some time after the influenzal pyrexia there was a marked lessening of the arthritic pains in these patients, and some freedom of movement in the affected joints resulted. It is fairly well known in India that the more elderly natives submit to plague inoculation not from dread of plague nor faith in the vaccine, but because experience has taught them that it eases their rheumatism.

Artificial Rise of Temperature as a Means of Combating Infection.

Consideration of these facts led us to think that a rise of temperature must help the tissues considerably in counteracting germs and their toxins. Rolly and Meltzer,[4] Lüdke,[5] and numerous other workers found that a temperature of 104°–107° F., artificially produced, had a favourable influence on an established infection. Heated animals were more resistant to injections of bacteria, and agglutinins and bacteriolytic substances were produced more abundantly in animals which were kept overheated. The heat may damage the infecting organism or it may cause a more rapid and firm union of antigen and immune body.

Petersen and Jobling,[6] using experimental animals, injected intravenously such substances as bacteria, kaolin, protein-split products and trypsin, and found that, almost invariably, the injections were followed by an increase of serum, protease, and lipase. They found similar reactions in patients after intravenous injections of vaccines and of proteoses, though to a lesser degree and with less regularity than in animals. They observed improvement in cases of established infection following such injections, and suggested that the ferments might digest the microbes and their toxins. They also found that the injections caused a transient decrease of antiferments in the blood (perhaps due to the greater metabolic demands in pyrexia), followed by a distinct and much more lasting increase. Certain conditions of low "infection index," such as cancer, pregnancy, and after vaccine treatment, also show a relatively high "antiferment index."

In the following cases we gave the vaccines intravenously. A quick reaction marked by a rise in temperature was the result, but there was no marked change in the pulse-rate, nor was there any other untoward symptom. According to Wright, vaccine injections are followed by a negative phase, at least as far as the opsonic power is concerned. Bull,[7] on the other hand, found that intravenous injections of typhoid vaccine in immunised rabbits caused only rapid increase of antibodies. Dunklin,[8] working with Jobling, found the same increase after intravenous injections of proteoses.

We think that giving the injections intravenously secures a greater protection and that almost at once. The mechanism would seem to consist of a selective stimulation of the hæmopoietic system by non-specific bodies. Probably no single factor is responsible for all the changes that occur, but the intravenous injection upsets the balance of the serum constituents, and the series of changes thus caused establishes a condition favourable to recovery from infection.

The vaccines we used had been stored for some months after their preparation, and they were, therefore, probably more or less detoxicated.

Whether a detoxicated vaccine has any specific properties or not requires proof. We strongly suspect that a vaccine minus its endotoxin consists simply of non-specific proteose in a colloidal form. Clinically we seem to get the same results from injections of T.A.B. vaccine as from a gonococcus or mixed vaccine. Our chief reason for using a gonococcus vaccine was that a supply was available, and its use afforded a greater facility for graduating dosage. Freshly prepared typhoid vaccine often causes so severe a reaction when given subcutaneously that we would not risk giving it intravenously. Probably the best vaccines to use would be vaccines detoxicated as described by Thomson,[9] but these were not available at the time. Injections of endotoxins always produce toxic symptoms with but little or no increase of antibodies.[10]

Record of Cases.

The four cases recorded below are typical of a series of 15 which were treated in the same way.

CASE 1.—A. B., age 29, had a history of gonorrhœa at the age of 22. On admission he showed a slight urethral discharge, chiefly mucus. There were present numerous pus cells and scanty gonococci. Both knee-joints were very much inflamed, swollen, painful, and full of fluid. Both shoulder-joints were similarly affected and both hip-joints. His general condition was very poor indeed, he had been bedridden for six months, and he was very thin and emaciated. He could not move either arm or leg, and therefore could not get up to irrigate. The urethral condition was treated locally, both urine glasses showing considerable muco-pus. His prostate was massaged weekly. Table I. is an account of the treatment he received for his rheumatism, and the progress he made:—

TABLE I.

Day.	Vaccine.	Time ad-ministered and max. pulse.	Time and degrees of max. temp.	Temp. again normal.	Progress.
1	25 mill. GC.	10 A.M. 92	4 P.M. 100·4	6 A.M.	Nil.
4	35 mill. GC.	10 A.M. 94	4 P.M. 103	9 ,,	Both hip-joints less painful.
9	1 c.c. T.A.B.	10 A.M. 92	4.30 P.M. 102	9 ,,	Swelling right knee reduced.
13	100 mill. GC.	10.30 A.M. 96	5.10 P.M. 103·2	9 ,,	Slight movement right knee.
17	200 mill. GC. 2000 mill. Diph.	10 A.M. 100	4.30 P.M. 104·8	6 ,,	Marked improvement; some movement possible in both knees.
21	1½ c.c. T.A.B.	10.30 A.M. 86	4.30 P.M. 104	6 ,,	Movement possible in shoulders.
26	400 mill. GC. 4000 mill. Staph.	10 A.M. 84	4 P.M. 103·6	,,	Swelling subsiding.
31	2 c.c. T.A.B.	10 A.M. 86	7 P.M. 103·2	10 ,,	All joints improved.
35	600 mill. GC. 6000 mill. Diph.	9.30 A.M. 80	3 P.M. 102·6	6 ,,	Patient able to get up in invalid chair.
39	800 mill. GC. 8000 mill. Diph.	10 A.M. 80	5 P.M. 104·4	9 ,,	Can walk length of ward with cane.
43	2 c.c. T.A.B.	10 A.M. 80	8 P.M. 103·6	9 ,,	General condition very much improved; appetite returning.
47	1000 mill. GC. 10,000 mill. Staph.	Noon 76	8 P.M. 103·2	9 ,,	Showing steady improvement; gaining ground daily.
52	1200 mill. GC. 12,000 mill. Diph.	10 A.M. 78	4 P.M. 102·8	6 ,,	Can walk with comfort with a cane.
57	2 c.c. T.A.B.	Noon 72	4 P.M. 100	6 ,,	Can occasionally discard cane; other joints practically well.
60	1400 mill. GC. 14,000 mill. Staph.	10.30 A.M. 72	5 P.M. 103	6 ,,	Has walked one mile.

General condition is now excellent. Movements in all joints are good and the patient can walk twice round the grounds without a cane. He was recommended three weeks in the country and thence to duty.

CASE 2.—C. D., age 28, had had three attacks of gonorrhœa. On admission he had a purulent urethral discharge, gonococci present in large numbers, pus in both urine glasses, and a very marked synovitis of left ankle. After being three months in hospital, during which time his urethral condition got well and his arthritis got worse, he came under our care. Both ankles were now involved, there being marked swelling and tenderness and considerable fluid present. The left ankle was larger than the right. He was on fish diet; his appetite was poor and his general condition wretched. He was very depressed and had very little interest in his surroundings. His pulse-rate ran from 90 to 100. His subsequent treatment and progress is set out in Table II.

This patient eventually turned out for physical training under the hospital P.T. Sergeant-Major, could walk two miles without a cane, and was discharged to duty 72 days after his first intravenous injection.

TABLE II.

Day.	Vaccine.	Time ad-ministered and max. pulse.	Time and degrees of max. temp.	Temp. again normal.	Progress.
1	½ c.c. T.A.B.	10 A.M. 100	10 P.M. 106·2	Noon next day.	Can tolerate no movement whatever.
7	½ c.c. T.A.B.	10.30 A.M. 104	11.30 P.M. 104·4	Noon next day.	No change.
11	1 c.c. T.A.B.	10 A.M. 102	10 P.M. 103·8	9 A.M.	Can tolerate slight movement.
16	100 mill. GC. 1000 mill. Diph.	10 A.M. 100	11.30 P.M. 105·6	Noon next day.	Swelling left ankle reduced.
20	1½ c.c. T.A.B.	11.30 A.M. 92	1 A.M. 103·8	9 A.M.	Pain left ankle subsiding.
25	200 mill. GC. 2000 mill. Diph.	10 A.M. 86	10.30 P.M. 104·6	9 ,,	Both ankles much improved.
30	400 mill. GC. 4000 mill. Staph.	10 A.M. 80	11.30 P.M. 104·6	6 ,,	Some movement now possible.
34	2 c.c. T.A.B.	9.30 A.M. 78	10 P.M. 103·8	6 ,,	Movements freer.
38	600 mill. GC 6000 mill. Staph.	10 A.M. 78	10 P.M. 102·6	6 ,,	Improvement now steady. To get up.
43	800 mill. GC. 8000 mill. Staph.	10 A.M. 72	10.30 P.M. 104·6	6 ,,	Pain in left ankle gone.
48	1200 mill. GC. 12,000 mill. Staph.	10 A.M. 72	10 P.M. 101·4	6 ,,	Walking about ward with cane.
53	1600 mill. GC. 16,000 mill. Diph.	10 A.M. 74	8 P.M. 102·8	6 ,,	Has walked 100 yards with cane.
58	2000 mill. GC. 20,000 mill. Diph.	10 A.M. 72	8 P.M. 102·2	6 ,,	Has walked 300 yards with cane.

TABLE III.

Day.	Vaccine.	Time ad-ministered and max. pulse.	Time and degrees of max. temp.	Temp. again normal.	Progress.
1	50 mill. GC.	10.30 A.M. 100	5 P.M. 103·8	9 A.M.	Nil.
5	100 mill. GC. 1000 mill. Diph.	10.30 A.M. 100	5.30 P.M. 104·6	9 ,,	Slight movement possible.
9	200 mill. GC. 2000 mill. Staph.	10.30 A.M. 102	5.30 P.M. 101·8	9 ,,	No change.
13	½ c.c. T.A.B.	10.30 A.M. 98	6 P.M. 103·2	6 ,,	Swelling of knees subsiding.
17	400 mill. GC. 4000 mill. Diph.	10.30 A.M. 96	8.30 P.M. 105·4	9 ,,	All joints subsiding.
21	800 mill. GC.	10 A.M. 90	7.30 P.M. 104·8	9 ,,	To sit up in bed.
25	1 c.c. T.A.B.	10 A.M. 86	10 P.M. 103·2	9 ,,	To get up in invalid chair.
29	1000 mill. GC. 10,000 mill. Staph.	10.30 A.M. 82	6.30 P.M. 104·4	6 ,,	General condition much improved.
33	1½ c.c. T.A.B.	10 A.M. 74	8·30 P.M. 103·2	6 ,,	Now no pain in joints.
38	1400 mill. GC. 14,000 mill. Staph.	10 A.M. 80	5 P.M. 104·4	6 ,,	Walking about ward with cane.
43	2 c.c. T.A.B.	10.30 A.M. 72	5 P.M. 103	6 ,,	Out of doors; occasionally discards cane.
49	1800 mill. GC. 18,000 mill. Staph.	10.30 A.M. 76	5 P.M. 103·8	6 ,,	Walking without cane. Last joint to clear up entirely was the right thumb-joint.

CASE 3.—E. F., age 26, had had two attacks of gonorrhœa, the first at the age of 20. His urethral condition had cleared up. He had been confined to bed for three months when he came under our care. At that time he was in a wretched condition, worn to a shadow, tongue heavily coated, marked anorexia, and badly constipated. His arthritis included the right shoulder, right wrist and thumb, left wrist, both knees, and both great toes. Each joint showed considerable swelling, redness, pain, and tenderness. Fifty-two days after his initial intravenous vaccine he was discharged from hospital. He was then comparatively well-nourished, had good movements in all joints, and had done over one week of physical training under the hospital P.T. Sergeant-Major. His vaccine treatment was as shown in Table III.

CASE 4.—G. H., age 27, had had three attacks of gonorrhœa. He had been bedridden for five months, and had received gonococcal vaccines (stock) subcutaneously during that period with little or no improvement. He was very much emaciated, in spite of extras in his diet, cod-liver oil, cream, daily massage, and so on. He could not sit up in bed, and he had to be spoon-fed by an R.A.M.C. orderly. There was marked wasting of the muscles of the thighs and calves, and of the left forearm. The joints involved were the metacarpophalangeal joints of the right hand, the left elbow, both knees, and the right ankle. Progress at first was very slow and often disheartening, but eventually he began to pick up, the joints improved in a wonderful manner, and once out in an invalid chair he made very rapid progress. During the whole of his vaccine treatment his bed was moved out on the balcony and remained there day and night. Every effort was made to induce him to eat and take a general interest in things. The muscles of both legs and left arm were massaged daily. His vaccine treatment and progress are detailed in Table IV.

TABLE IV.

Day.	Vaccine.	Time administered and max. pulse.	Time and degrees of max. temp.	Temp. again normal.	Progress.
1	½ c.c. T.A.B.	12 noon. 120	10 P.M. 103·4	9 A.M.	Nil.
5	½ c.c. T.A.B.	,, 124	10 P.M. 103·2	9 ,,	,,
9	½ c.c. T.A.B.	,, 120	10 P.M. 101·8	11 ,,	Severe headache.
18	25 mill. GC.	,, 114	10 P.M. 104·2	10 ,,	Seems brighter.
17	50 mill. GC.	,, 112	8 P.M. 104	9 ,,	No change.
21	100 mill. GC.	,, 120	10 P.M. 103·6	11 ,,	,,
25	1 c.c. T.A.B.	,, 110	8 P.M. 104·6	8 P.M.	Swelling right elbow subsiding.
30	200 mill. GC. 2000 mill. Staph.	,, 104	11 P.M. 105·8	10 A.M.	Appreciable movement right elbow.
35	300 mill. GC. 3000 mill. Diph.	10 A.M. 100	6 P.M. 103·8	9 ,,	No change.
39	400 mill. GC. 4000 mill. Diph.	9.30 A.M. 100	— 98·4	—	,,
43	800 mill. GC. 8000 mill. Diph.	9.30 A.M. 98	7.30 P.M. 104·8	6 A.M.	Able to sit up in bed.
48	1000 mill. GC. 10,000 mill. Diph.	10 A.M. 90	4 P.M. 102·6	6 ,,	Both knees tolerate movement. Some active movements in right elbow. Remarkable advance in his general condition.
52	1½ c.c. T.A.B.	Noon 92	8 P.M. 103·8	6 ,,	To get up in invalid chair.
58	1200 mill. GC. 12,000 mill. Diph.	10.30 A.M. 86	11 P.M. 104	6 ,,	Can stand up with two canes.
63	1600 mill. GC. 16,000 mill. Diph. (old stock).	9.30 A.M. 78	— 98·4	—	No reaction.
68	1800 mill. GC. 18,000 mill. Diph. (old stock).	9.30 A.M. 72	6 P.M. 102·8	6 A.M.	Can walk a few yards with two canes.
73	2 c.c. T.A.B.	10 A.M. 74	6 P.M. 104·8	6 ,,	No pain in any one joint.
78	1400 mill. GC. 14,000 mill. Staph.	10 A.M. 72	6 P.M. 104·4	6 ,,	Moving about ward with two canes.
82	1600 mill. GC. 16,000 mill. Staph.	10 A.M. 72	6 P.M. 103·8	6 ,,	Occasionally discards one cane.
87	1800 mill. GC. 18,000 mill. Staph.	9.30 A.M. 72	6.30 P.M. 104	6 ,,	Grip of right hand quite good. Free movements left elbow.
92	2000 mill. GC. 20,000 mill. Staph.	Noon 76	6 P.M. 104·8	6 ,,	Now walking about grounds with one cane. General condition is extremely good. All joints are practically normal.

Conclusion.

The following we consider the most noteworthy points:—

1. The marked improvement in all cases.
2. That no benefit seemed to result from an injection that was not followed by pyrexia.
3. Though the temperature rose there was no change of any importance in the pulse-rate nor any other untoward symptom. At the time treatment was commenced the patients were extremely debilitated with a rather fast and weak pulse, which was easily accelerated.
4. The injections were all intravenous.
5. There was no appearance of a clinical negative phase.
6. The vaccines we used were not freshly prepared. As a result of storing, probably the toxins contained had broken down more or less.
7. The injection of these, possibly, non-specific germ constituents would seem to have caused the production of specific antibodies.
8. The size of the doses used. These compare favourably with the doses recommended by Thomson for his detoxicated vaccines. The doses of pus vaccines used by Pineo and Baillie[11] seldom exceed 72 million given subcutaneously and never exceed 150 million. The largest dose of gonococci used by us was 2000 million.

We are indebted to Lieutenant-Colonel Wm. Robertson and Lieutenant-Colonel E. B. Booth, D.S.O., for facilities in compiling and using records of this series.

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THE LATE MR. ERNEST SAXTON.—Ernest Saxton, L.R.C.P. & S. Edin., L.R.F.P.S. Glasg. died suddenly on the evening of Jan. 13th at his home at Didsbury. It was known that he was not in good health, but such a sudden end was not anticipated, and he was at work in his surgery when a fatal heart seizure occurred. An Edinburgh student, qualified in 1901, at one time he practised at Trentham, Stafford, having a district union appointment and public vaccinatorship in the Stoke union, and acting as honorary physician to the Hanchurch Convalescent Home for Children. He came to Manchester some ten years ago to take up the practice of the late Dr. J. M. Rhodes, and has since worked in the Didsbury district, except for the time he was abroad on war service in the East. He leaves a widow and one son, with whom great sympathy is felt in their sudden loss.

A NEW PYLORUS.

POSTERIOR GASTRO-JEJUNOSTOMY WITH JEJUNO-JEJUNOSTOMY AS A ROUTINE OPERATION IN ALL CASES OF PYLORIC OBSTRUCTION—DUODENAL OR PYLORIC OR CHRONIC GASTRIC ULCER.

BY G. GORE GILLON, F.R.C.S. EDIN.,

CONSULTING SURGEON, AUCKLAND HOSPITAL; LATE LIEUTENANT-COLONEL ATTACHED R.A.M.C., AND SURGEON, LONDON MILITARY HOSPITAL.

I WROTE a paper on this subject in 1913, describing a series of operations for duodenal ulcer and read it before the Australasian Medical Congress held at Auckland early in 1914. Since then, in 1915, I published a short paper on the subject in the *British Medical Journal*, with a diagram.

History of the Operation.

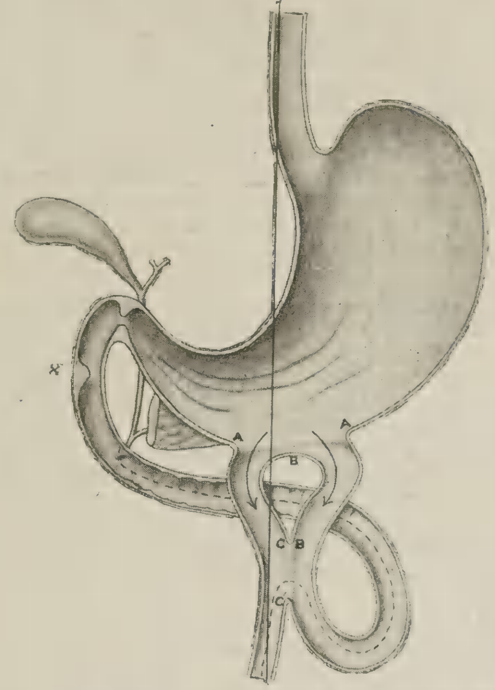
The history of this operation may be stated briefly. Braun, Weir, and Jaboulay performed a jejuno-jejunostomy over 20 years ago, but *only* when combined with an *anterior* gastro-jejunostomy.[1] Jaboulay published his paper in 1894 and Weir in 1898.[2] Jejuno-jejunostomy was done occasionally, as Sir Berkeley Moynihan has informed me, after these dates in England—as an addition to the posterior operation when a very long loop had been left. But this method quite went out of fashion as there were alleged against its use: (1) the occasional occurrence of a jejunal ulcer afterwards, and (2) the length of time involved in its performance. The "long loop" operation in the early days probably failed either because the loop was *too long* and so got kinked, or because the technique at that time was faulty and a certain number of cases of jejunal ulcer were reported as having followed as a sequel. The time for the double operation should never exceed 1 hour 20 minutes nowadays, allowing a few minutes for change of gloves for the second anastomosis. Thus this long loop operation was practically discarded 15 years ago, and surgeons all over the world have done the present operation of "no loop" posterior gastro-jejunostomy. This operation was and is undoubtedly a "cure" for cases of pyloric obstruction and duodenal and pyloric ulcer, and certainly the ulcer does heal and the obstruction is overcome. But there was much dissatisfaction as regards the results of the operation as time went on, many patients complaining of various uncomfortable sensations in the abdomen, and very many of them being in feeble health and unable to take hard exercise.

A New Pylorus.

When one sets about altering the mechanism of the alimentary tract—altering nature's plan—it surely behoves him to do so in a manner that shall produce no secondary disability. We must remember that the patient has presumably a long time to live with the modifications which the surgeon has effected. When we want to do away with the use of the old pyloric gateway we must make certain that the new gateway is situated at the *lower* end of the stomach (see figure), and by a jejuno-jejunostomy, some $3\frac{1}{2}$ in. away from the new pylorus, we can make sure that the food stream does not mingle with the bile and pancreatic fluids till the bowel is reached. By a jejuno-jejunostomy the duodenum gets a perpetual rest and the descending jejunal double tube takes the functional place of the first segment of the duodenum.

The accompanying figure shows Mr. Gillon's modified operation for short-circuiting the gastric contents.

I hold that the present-day "no loop" operation is physiologically incomplete; the bile and pancreatic fluids find their way into the stomach, and the long series of complaints noted by physicians are entirely and wholly due to this unnatural result of the conventional operation. These $3\frac{1}{2}$ in. of jejunum shown in the figure functioning as the first $3\frac{1}{2}$ in. of duodenum make all the difference in the world to the unfortunate sufferer. Digestion goes on naturally; he is never troubled with hyperacidity, and jejunal ulcers simply do not occur.



Diagrammatic representation of author's operation of posterior gastro-jejunostomy with jejuno-jejunostomy. Distance A to C = $3\frac{1}{2}$ in.; A to A = 3 in.; B to B = $2\frac{1}{2}$ in.; C to C′ = $1\frac{1}{2}$ in. X = ulcer. The dotted line shows the course of the bile and pancreatic fluid.

The Operation Described.

To prevent misconception I shall describe shortly my operation. After opening the abdomen and exposing the part of the stomach I require I put in my right hand and bring up from the left of the spine 10 in. of jejunum, counting from the duodeno-jejunal junction, immediately at the left of the second lumbar vertebra; 3 in. of this proximal loop are used to make the first anastomosis, leaving 7 in. for the second anastomosis. The gastro-jejunostomy opening is made 3 in. in length (see A to A in figure). My assistant and I now change our gloves and then make the anastomosis between the two descending legs of the jejunum at a distance of $3\frac{1}{2}$ in. below the stomach opening (B to B in figure). The anastomotic opening itself should measure $1\frac{1}{2}$ in. vertically (C to C′). The gastrocolic omentum is attached to the jejunum near the stomach by two stitches, and any veins in the omentum tied. I use fine silk or linen thread. The abdomen is then sewn up in the usual way. The vertical black line in the figure shows the position of the spine. A to A indicates the new pylorus, the arrows point out the direction of the food stream. The dotted line along the duodenum from Vater's ampulla to the jejunal opening, C to C′, shows the course of the secretions from the pancreas and liver to join the food stream issuing from the stomach.

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[1] Vide Archiv f. Klinische Chir., 1823, xlv., pp. 3614 (Braun).

[2] Med. Record, 1898, vol. liii., p. 541.

The patient can lie in a recumbent position a few hours after the operation, and need not be propped up, hence there is less strain on the abdominal stitches. He is fed with tablespoonfuls of water for a day, and then peptonised milk in the usual way for a few days, and in eight days is taking a fair amount of light food. On the twelfth day he gets 2 or 3 gr. calomel; prior to that his bowels are opened by rectal injections if required. He should lie on his back for the first three weeks, and leave hospital on the twenty-fourth or twenty-eighth day. The operation has never taken me longer than 1 hour 15 minutes in an uncomplicated case. I have never had a case of jejunal ulcer afterwards.

Results.

The results are uniformly good, and the patients are not only well, but very well. They put on weight. They develop a great capacity for swallowing large quantities of liquids without discomfort. I may mention that three of my cases—two men and one woman—undertook a journey of some 1200 miles by sea within a few months after the operation, and although all three had previously been great sufferers from sea-sickness, yet they reported to me afterwards that they were not seasick and enjoyed their meals heartily all through the voyage, although it was winter time and the sea was very rough.

Notes of a case done a year ago.—Mr. ——, aged 30, height 5 ft. 10½ in., was operated on by me at St. Thomas's Nursing Home on Dec. 1st. 1918. He was admitted to the hospital on Nov. 16th, 1918, suffering from profound anæmia due to loss of blood for the past 12 years from a duodenal ulcer. He was so pale and bloodless that he had to be kept 15 days on special diet and have intravenous saline injections before he was fit for operation. His weight then was 8½ st. The operation, in which Mr. O. H. Hyman assisted me, took exactly 1 hour and 15 minutes. Three weeks after the operation the patient left the hospital, and in six months' time he had put on over 1½ st. in weight. He went back to work in April, 1919, and has been at work ever since, and has not the slightest sign of indigestion or any pain or inconvenience of any kind; his cheeks are a healthy red colour.

With regard to my experience of this operation I may say that during the last nine years I have carried it out in the way I have described in every case—as a routine practice. So convinced am I of its excellence that I adopt it in cases of perforation, either at the same sitting, or, where the patient was too weak, by opening the abdomen again in four weeks' time, and leaving meanwhile a good 7-in. loop of proximal jejunum for me to find when I make the second anastomosis.

Wimpole-street, W.

THE LATE DR. E. L. DUNN.—Edwin Lindsay Dunn, medical superintendent of the Berkshire County Asylum, who died at Wallingford on Jan. 12th, was an exhibitioner of Trinity College, Dublin, graduating in 1887 as B.A., M.B., B.Ch. He had held resident posts at the Liverpool Dispensary and the Liverpool Infirmary for Children before becoming assistant medical officer at the Wakefield Asylum, from which he went on to Wallingford.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

A CASE OF

MEDIASTINAL TUMOUR ASSOCIATED WITH ACUTE LEUKÆMIA.

BY C. RHODES HARRISON, M.B., B.S. LOND.,
CAPTAIN, R.A.M.C. (T.F.);
AND
D. MCKELVEY, *M.C.*, M.R.C.S.,
CAPTAIN, R.A.M.C.
(From the Pathological Department, 3rd London General Hospital.)

THE association of mediastinal tumours of malignant appearance with the presence in the blood of enormous numbers of large mononuclear cells is of sufficient rarity to warrant the following brief note.

Corporal ——, aged 29 years, served continuously from August, 1914, and was quite healthy until April, 1919. He went sick to a C.C.S. in Belgium on May 31st, 1919, with history of pain and discomfort in the epigastrium shortly after food and occasional vomiting, which had been going on for about six weeks. Temperature was normal during the day, but rose to 99° F. in the evening. On June 20th he developed sudden swelling of the left arm due to thrombosis. On the 27th he came under our notice. He then complained of pain in the epigastrium, which became worse at night, but did not seem to have any definite relation to food. Examination of the abdomen revealed nothing except slight tenderness below the ensiform cartilage. As to the respiratory system, there were no subjective symptoms, but percussion revealed an area of intense dullness in the middle line, from the clavicle to the heart, and liver dullness, extending 2 inches to the right and 1 inch to the left of the sternum. No dullness could be made out posteriorly. X ray examination showed an opaque mass, which did not pulsate and did not move with respiration, behind the sternum, conforming with this area. The spleen and lymphatic glands were not enlarged.

A blood count showed: Red cells, 5,600,000 per c.mm.; total leucocytes, 86,000 per c.mm. The films showed among the leucocytes an enormous preponderance of cells, 10 to 15μ, having a single large pale-staining nucleus, round, oval, or indented. The oxidase reaction was not tried, but they appeared to be non-granular myelocytes. The differential count showed: Polymorph. neutrophils, 3 per cent.; polymorph. eosinophils, 0·5 per cent.; large mononuclear cells, 96·0 per cent.; neutrophil myelocytes, 0·5 per cent. Small lymphocytes were scanty, and a few normoblasts were seen. The patient sank gradually, dyspnœa and cyanosis appeared, and he died on July 22nd. On the day before his death a blood count showed: Red cells, 4,100,000 per c.mm.; total leucocytes, 210,000 per c.mm.

Post-mortem Findings.

At autopsy a large mass, white and very tough, about the size of a cocoanut, was found in the mediastinum, spreading down over the heart and enveloping the borders of the lungs in such fashion as to resemble on section greatly thickened pleuræ. Behind and laterally the mass had infiltrated the lungs and bronchial glands, the latter being in places recognisable by the unaided eye only by the arrangement of black pigment. There were no metastases. Microscopically, the tumour mass showed (Fig. 1) cells resembling the leukæmic cells of the blood supported by a stroma which was in places dense and hyaline. The edges showed a looser and more cellular texture of leukæmic cells with a free capillary supply. Wherever examined the growth passed by infiltration into the adjacent tissue, as is seen in Fig. 2, the section being made where the visceral pericardium is replaced by a sheet of growth ½ to ¾ of an inch thick, the free surface of which is lined by a layer of flattened cells, while the cells of the other passed freely between the muscle fibres of the heart wall. A similar condition is present where the sheet of tissue invades the lungs and pleuræ. No evidence was found of thymic tissue. The spleen was but little enlarged, showing (microscopically) leukæmic infiltration; the Malpighian bodies and their germ centres were very clearly marked. The liver showed some infiltration, while the kidneys were almost unaffected. The abdominal glands were only very slightly enlarged, as were the axillary, cervical, and inguinal; microscopically, there was leukæmic infiltration, but the general structure of the glands was unaltered. The bone marrow of the sternum showed masses of the leukæmic cells, together with megacaryocytes, myelocytes, and erythroblasts.

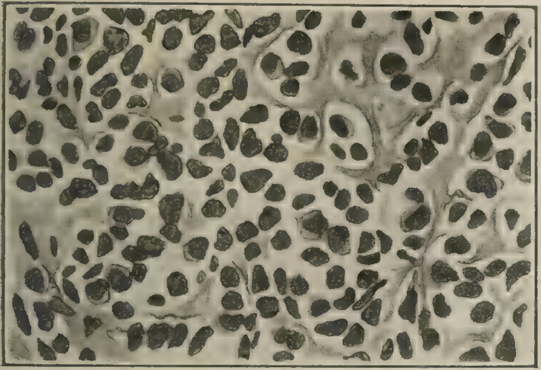

FIG. 1.—Section of mediastinal tumour.

Remarks.

This association of mediastinal tumour and escape of cells into the blood stream is of considerable rarity and of great interest on account of the possible connexion between the leukæmias, lymphadenomata, and lymphosarcomata. Sternberg held that there were two distinct conditions: (1) Increase of cells of the small lymphocyte type with hypertrophy of the lymphatic apparatus and infiltration of the various organs—that is, lymphatic leukæmia; and (2) mediastinal leukosarcomatosis as described above. Fraenkel, on the other hand, thought that (2) was simply a leukæmia tending to form tumour-like masses of cells having the appearance of malignant growths. The situation of the growth suggests association with the thymus, and appearances have been described in similar cases which resemble Hassal's corpuscles. In this connexion it may be mentioned that Gamgee has described a lymphosarcoma of the thymus with no increase of white cells in the blood, while Lochte mentions two cases of enlarged thymus "epithelioid transformation" associated with acute lymphatic leukæmia.

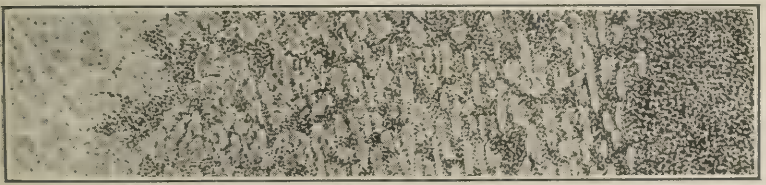

FIG. 2.—Section showing infiltration of heart wall.

The case described above presents one very remarkable feature, the high proportion of red cells right up to the time of death. For comparison, counts of other cases are given:—

(1)	Red cells:	1,500,000 per c.mm.;	leucs.:	176,000.	(Parkes Weber.
(2)	,, ,, :	1,600,000 ,, ,,	,, :	103,125.	(,, ,,)
(3)	,, ,, :	1,472,000 ,, ,,	,, :	295,000.	(O'Kelly.)
(4)	,, ,, :	2,000,000 ,, ,,	,, :	60,000.	(St. Bart.'s Mus.)
(5)		——	,, :	810,000.	(Mager.)
(6)	,, ,, :	4,100,000 ,, ,,	,, :	210,000	—case described here.

In conclusion we wish to express our thanks to Majors W. Essex Wynter and A. F. Voelcker, R.A.M.C. (T.F.), for their kind assistance.

A NOTE ON THE

"NEW GAS AND ETHER."

BY J. BLOMFIELD, O.B.E., M.D.CANTAB.,
SENIOR ANÆSTHETIST AND LECTURER ON ANÆSTHETICS, ST. GEORGE'S HOSPITAL.

BY "gas and ether" is usually meant, since the day of Clover, its inventor, a method of anæsthesia in which nitrous oxide plays a merely preliminary part in the induction, the maintenance of anæsthesia being entirely supported by ether. By "new gas and ether" I mean a method in which nitrous oxide is relied on throughout, and ether plays the supplementary part. The one is continuous ether with preliminary gas, the other continuous gas with occasional ether. It is a system which is widely applicable, gives good results, and requires only comparatively simple apparatus, for which reasons I venture to draw attention to it, although, no doubt, other anæsthetists have, like myself, been in the habit of using "gas and ether" apparatus in this way for years. I do not, however, remember having seen it definitely described.

The apparatus necessary is merely a Clover's inhaler, preferably the wide-bore modification, and attached to it an ordinary 2 gallon bag with Hewitt's stopcock, connected with gas cylinders. With a small prop between the teeth, and the head turned well to one side, the face-piece is accurately fitted to the face while the bag is about two-thirds distended. The induction is now carried out as ordinarily with "gas and ether." That is to say, unconsciousness is secured with gas only, an ounce and a half of ether then put into the chamber, the expiratory valve shut, and the indicator fairly rapidly advanced till at the end of about four minutes there is stertor and full narcosis.

From now onwards, instead of getting rid of the "gas," as in the old method, the aim is to use it all the time and the ether as little as possible. The procedure is as follows:—

If the patient is a muscular man or in any way what is called a difficult subject let the indicator be advanced quite to "full" in the course of the induction. When anæsthesia is present turn the indicator rapidly back to "0." The patient is now re-breathing a mixture of N_2O, E., and expired air with CO_2. Open the expiratory valve, thus emptying the bag, and at once fill it two-thirds full again with N_2O, which you allow to be re-breathed. Give breaths of air by means of the stopcock as often as it is necessary to do so to keep the colour free from all blueness. Empty the bag, by opening the exploratory valve, about every five minutes. Any indication that the narcosis is too light is met by advancing the indicator and admitting a little ether.

By this simple method a great many patients can be kept satisfactorily anæsthetised by an inhalation which is for the most part one of nitrous oxide. Consequently they are saved from the after-effects, which are the drawback to ether. At the same time they have the pleasant and quick induction

due to nitrous oxide and they are provided with such advantages as may accrue from small quantities of CO_2 and from a vapour which is warmed. The completeness of relaxation which can be achieved depends a good deal upon the extent to which ether is admitted. For abdominal operations this is not a good method unless an oxygen cylinder is connected up with the bag, in which case results can be obtained equal, I think, to those that are secured by the fashionable "sight-feed" machines. In the absence of oxygen I find that too much ether is needed to get abdominal relaxation for this method to be any superior to open ether or to a C.E. mixture. Relaxation, in fact, is largely a matter of oxygenation. It is for such operations, though, as were so frequent in war surgery—long operations upon bones and sinuses of the trunk or limbs—that I have found the method so very useful, both because of the condition obtained on the table and for the freedom from much sickness afterwards. Here, for example, is a case typical of what I wish to enforce:—

Oct. 24th, 1917: Captain ——, in good health, slight build. Operation: reamputation of thigh; anæsthesia by "new G. and E.," 1 ounce of ether in wide-bore Clover; indicator to "F." during induction, then "E." off altogether and "G." re-breathed. Frequent breaths of air needed to keep colour good. Twice "E." admitted for a minute at a time on account of slight movement in other leg. Slight cyanosis allowed several times. No signs of shock. At end of 40 minutes operation finished. Patient talking within five minutes and very incredulous of operation having been performed. No after-sickness, no discomfort.

Another patient who had undergone a plating of the femur under C.E. narcosis had suffered greatly from sickness, so at a second operation I used this "new gas and ether." The operation took 50 minutes and he was conscious within three minutes, not nauseated at all, and feeling "quite happy." This patient was pale from long sepsis and needed very free aeration.

With this method, as with all others, perfect results are not to be obtained with every kind of subject. Very fat persons, and those with narrow or obstructed upper air-passages are unfavourable. By modifying the procedure through the introduction of oxygen, in the feebler kind of subject, and small quantities of chloroform added to the ether in the robust kinds, the great majority of patients can, however, be very well managed for a great variety of operations. When chloroform is added it should not be in proportions greater than 1 to 12 of ether. Generally speaking, it is not the method of choice for operations upon the upper abdomen, and is, of course, out of court where the face is concerned, except for very short procedures. It provides an excellent anæsthesia for rectal operations, for curetting the uterus, and for such proceedings as radical cure of hernia and hydrocele, and all operations upon the limbs.

LITERARY INTELLIGENCE.—Messrs. William Hodge and Co., Ltd., London and Edinburgh, announce for early publication, in their series of Notable Trials, "The Trial of Hawley Harvey Crippen."

ENHAM VILLAGE CENTRE.—The town of Southampton has collected towards the funds of the Enham Village Centre the sum of £500, which will be devoted to the erection and equipment of a basket-making shop, called the "Southampton Hut." It is hoped that many other towns in the United Kingdom will follow the lead given by Southampton. Subscriptions should be sent to the Secretary, The Village Centres Council for the Curative Treatment and Training of Disabled Ex-Service Men, 51, Lincoln's Inn-fields, Holborn, W.C. 2.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 16th, Mr. HERBERT TILLEY, the President, being in the chair.

New Knowledge on the Vestibular Structure.

Dr. ALBERT A. GRAY (Glasgow) demonstrated, by means of a series of beautiful slides, some previously unrecorded anatomical details of the human vestibule, relating at the same time how the discovery was made. The first is a curious band of cartilage which encircles the oval window. The foot-plate of the stapes has a layer of cartilage on its vestibular surface, but no observer has pointed out that there is a considerable layer of cartilage extending over the inside of the vestibular wall, towards the cochlea, above the vestibule, and posteriorly towards the semi-circular canal. Another feature which he regards as new is a cleft coming down from the anterior margin of the oval window. This he has found to vary a good deal in different cases. Posteriorly, in many cases, Dr. Gray found a foramen of 1/10 mm. behind the posterior margin of the oval window. Another feature, which the demonstrator found it difficult to explain, concerns the position taken up by the stapes after death. In the exhibited specimens the stapes is rotated on a vertical axis, which passes through the junction of the middle and posterior thirds. Stereograms show that the stapes in the cadaveric position is not in the same plane as the wall of the oval window round about it, but the anterior two-thirds of it is rotated inwards, and the posterior third outwards. That he attributed to the action of the stapedius muscle, possibly, in his opinion, it is due to the spasmodic contraction of that muscle in the death agony, or to rigor mortis. In the ninth specimen which he examined the crura and the stapes had been rotated by caries or by cholesteatoma, and there was no drag on the stapedius muscle; and in that instance the foot-plate of the stapes was in the same plane as the oval window. This seems to give a clue to the function of the stapedius muscle. The cartilaginous layer Dr. Gray regards as a remnant of the cartilage surrounding the otocyst in lower forms of animal. Some authorities, he said, considered this change of bone in front of the oval window to be the cause of otosclerosis, but he thought these cells played more than a passive part in otosclerosis. The bony change seemed to always begin in the cochlear portion, never behind the oval window, though extension to the latter might occur. The persons from whom the specimens were removed were between the ages of 20 and 65.

The PRESIDENT cordially congratulated Dr. Gray on his work.

Cases of Meningitis and Labyrinthitis.

Mr. J. S. FRASER and Dr. J. K. MILNE DICKIE (Edinburgh) described an interesting series of cases—i.e., three examples of epidemic cerebro-spinal meningitis, and one of pleuro-pneumonia, bronchiectasis, meningitis, and labyrinthitis. In connexion with meningitic labyrinthitis the authors said that though most of the cases of labyrinthitis resulted from middle-ear suppuration, a minority were due to purulent lepto-meningitis, and in these latter, labyrinthitis secondary to epidemic cerebro-spinal meningitis occupied the first place. They agreed with those who considered that mumps deafness was secondary to meningitis. The original site of infection must be the upper or lower respiratory tract, the parotid gland, the tonsil, the alimentary tract, or other parts, but in all cases probably invasion of the blood stream was the next step in the production of meningitis. Mr. Fraser suggested that cases of meningitic labyrinthitis were much commoner than is generally supposed. He regarded them as a very common cause of deaf-mutism. A child at an age prior to that at which talking was learned had meningitis, possibly connected with pneumonia or some zymotic disease. Infiltration occurred along the eighth nerve, passed to the cochlea, destroyed the inner ear, and the child never talked. It was probably considered to be a case of congenital deafness, whereas it was really acquired deafness, due to early labyrinth suppuration.

Dr. GRAY said he thought Mr. Fraser's suggestion concerning the cause of deaf-mutism after any form of meningitis was probably correct, because after epidemic cerebro-spinal meningitis deafness was very much more common than blindness. If that were due to the effect of the change within the cranium, why should that be so?

Dr. DAN MCKENZIE asked whether meningitis was ever induced by middle-ear suppuration extending along the facial canal and meninges only. Was it not true that the cases formerly reported as due to infiltration along the facial canal were also cases in which there was labyrinth suppuration from without? In most of the old records either the labyrinth was not mentioned, or the statement was made that pus existed in the labyrinth, hence in those instances it was impossible to say whether the meningitis was induced by irritation along the facial canal alone.

Dr. P. WATSON-WILLIAMS (Bristol) raised the question of the recoverability of children who were affected with suppuration involving the labyrinth. He discouraged the tendency to regard these cases as hopeless from the point of view of saving life, with the consequent failure to pursue active measures. He related such a case in his own practice in which he did a labyrinthectomy, opened the external semicircular canal and the cochlea, did repeated lumbar puncture, and used intravenous and intrathecal injections of colloidal silver, with the happiest result.

Mr. W. STUART-LOW congratulated Mr. Fraser and Dr. Dickie on their work, and said he had been struck with the number of these cases which were seen in large clinics. At his hospital the practice was to take such patients into the hospital so as to treat them adequately. In some instances he had done a cortical mastoid operation and it had produced benefit by draining the ear and setting up a better circulation. Help was also given by small frequent doses of mercury. He considered that the channels of infection were the throat, Eustachian tube, and middle ear. He believed that fugitive evanescent otitis media sometimes occurred without symptoms, and at such times infection of the labyrinth was set up.

Mr. SYDNEY SCOTT said he was interested in the question whether infection always took place from the labyrinth to the meninges or more frequently from the meninges, pia arachnoid, and seventh and eighth nerves to the labyrinth. He was not inclined to accept, without further evidence, Mr. Fraser's view that infection necessarily spread from the meninges to the labyrinth and then to the middle ear, because there might occur acute otitis media with infection in the naso-pharynx, which might resolve in the pharynx while it was still persisting in the tympanum; also that in certain parts of the tympanum the infection resolved while it persisted in some of the niches of the tympanic cavity. And the condition of the round window was such that in some cases there might be an unresolved infection in that region, though the infection had disappeared everywhere else.

Mr. FRASER replied.

Sarcoma of Middle Ear Arising in Eustachian Tube.

Mr. RICHARD LAKE showed a man, aged 33, who, while in Canada in 1918, complained of deafness in the left ear, and towards the end of the year pain in that ear and the left side of the head. In the following May a Vancouver aurist removed an aural polypus, a post-nasal growth, and the tonsils. Recurrence of the two latter took place in six weeks. A further operation was done in November, 1919, which Mr. Lake described. The healing of the cutaneous wound was immediate. A radium tube was buried in the middle ear for 12 hours. The health was now improving. The pathologist's report showed the growth to be a spindle-celled sarcoma involving the middle ear.

Transplantation of Masseter Muscle for Facial Paralysis.

Mr. SOMERVILLE HASTINGS showed a woman, aged 35, on whom labyrinthectomy had been carried out for severe giddiness of three years' duration, with the result that the giddiness was cured, but she had facial paralysis, with some necrosis of bone and some discharge from the ear. The result of the transplantation was a reduction in the deformity and the restoration of some movement at the angle of the mouth.

Mr. E. D. DAVIS showed an interesting series of cases. In the first the patient, who had resided in India many years, had suffered for 10 years from otitis externa and dermatitis. There was also much stenosis at the junction of bony and cartilaginous meatus. A conservative mastoid operation was done; no skin-grafting. The result was satisfactory, but there had been one attack of dermatitis since. The hearing was now improved. In the next case, a youth, aged 20, had stenosis of the meatus following the removal of a large sessile exostosis which extended from the meatal orifice to the drum. Stenosis recurred very soon after the removal of the drainage-tube, and had continued in spite of the insertion of a tightly-fitting smaller tube.

Mr. Davis next showed post-mortem specimens from a case of cerebellar abscess which was complicated by thrombosis of the lateral and the cavernous sinuses. There were two operations, and the patient died 24 days after the second. There was no meningitis. He also exhibited a sequestrum of the cochlea and semicircular canals following a fatal case of extensive encephalitis of the temporo-sphenoidal lobe.

Mr. ARTHUR CHEATLE exhibited a specimen of Aspergillus which was obtained from a mastoid cavity.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 23rd, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

Œsophagectasis in an Infant.

Dr. FREDERICK LANGMEAD contributed the notes of a case of Œsophagectasis in an Infant, with radiograms.

The patient, a girl infant, was born at full term by a normal labour. She was a very small baby, weighing no more than 4 lb. at birth. Shortly after birth it was noticed that "something was wrong with her stomach." On the first day she retched and "vomited," even before her first feed. She was breast fed for one week, during which time she "vomited" occasionally, and her stools were green. At one week she was weaned and put on cow's milk and water. She was now constipated, but the "vomiting" continued; it occurred about an hour after food, was not projectile, and was often brought on by change in posture. At four months she was wasted and weighed "no more than 3 or 4 lb." Afterwards the "vomiting" was not so frequent and occasional feeds were retained. The constipation continued, hard small stools being passed. After her feeds she used to be very quiet, pale, and "collapsed," but recovered, and the colour returned after "vomiting." She slowly gained weight and reached 14 lb. 5 oz. at a year and three months old, one month before admission. For three or four months before admission the "vomiting" followed immediately after or coincided with a meal, and the food "did not seem to enter the stomach at times." The vomit was unaltered milk, sometimes accompanied by mucus. The father and mother were both healthy, and there was no history of neurasthenia or neuroses on either side of the family. The patient was the third child in a family of three, the elder members being quite well. No miscarriages.

On admission to hospital on Nov. 28th, 1919, the child was found to be fairly well developed and nourished, but with a pale face, slightly sunken eyes, and hanging folds of skin, indicating recent loss of fat. The fontanelle was slightly depressed. There were no signs of rickets. Examination of the abdomen revealed no tumour or gastric peristalsis. Heart and lungs were apparently normal. The knee-jerks were very exalted, otherwise there were no abnormal nervous phenomena. The urine contained acetone in definite amounts. After admission the child cried incessantly, apparently without pain. A stomach-tube was passed, but no food washed out. During the first 24 hours the child refused all food and was fed by a tube; she "vomited" afterwards. Next day she took equal parts of milk and water a little better, but cried almost continuously if not nursed or petted. A single vomit contained mucus; the milk was not digested and contained no curd. On Dec. 4th, six days after admission, X ray examination was made after a bismuth meal. Three screenings were done, one immediately after the meal, one an hour later, and the last three hours later. A dilatation of the œsophagus was detected near its lower end, centrally placed, and about the size of a hen's egg. Immediately after the meal most of it was seen to be retained in the œsophageal sac, but some had passed on into the stomach. The second and third screenings showed that part of the meal was still retained. There was no obstruction in the alimentary tract below the cardia.

As the result of this examination an attempt was made to pass a stomach-tube twice a day with a view to introducing food and dilating the cardia. This appeared to be successful, but there was some doubt whether the tube curled up in the sac or traversed the cardiac opening; the vomiting was now less, but only 6 oz. could be held, the rest flowing back. To elucidate this point an opaque tube was passed under X rays, and it was found that the tube, ⅓ in. in diameter, would not pass through the cardia, but curled back into the sac on reaching the lower end. Since the child was losing weight and a tube could not be passed, Mr. O. Addison was good enough to see her with a view to surgical treatment. The œsophagus was examined with an œsophagoscope, which passed freely into the stomach under an anæsthetic, and revealed no organic cause for the retention of food in the gullet. No operation was considered advisable.

The case appeared to be one of œsophagectasis due to want of relaxation of the cardiac sphincter dating from birth, and to be similar to the examples of greatly dilated œsophagus recorded in adults. The absence of cough and dyspnœa, such as occurs in adults, could be explained by the relatively small degree of dilatation. There was probably a close analogy between this condition and that of pyloric spasm, and it would appear that it bears the same relationship to hypertrophic stenosis of the cardia that pyloric spasm does to hypertrophic stenosis of the pylorus. An example of hypertrophic stenosis of the cardia was shown before the last meeting of this section by Dr. Eric Pritchard; this was associated with hypertrophic stenosis of the pylorus. In this case the disorder at the cardia was the only defect. The endoscopic examination was important as demonstrating the absence of an organic lesion.

Dr. F. PARKES WEBER said that the condition had been found at all ages, and related the case of a man of 70 in whom no cause for the obstruction was found after death. Fatal cases occurred in adults, the patients dying of starvation. Early infancy was one of the recognised times for the disorder to make its appearance, and he quoted examples from the literature in which the diagnosis had been made in infancy, including a few instances at which it had been proved by radiography.

Dr. H. C. CAMERON had met with the condition not infrequently in adults. He suggests the use of a mercury tube, which in adults was successful in passing the pylorus.

Dr. G. A. SUTHERLAND commented on the early occurrence of the disorder, the first symptoms having appeared within a few hours of birth. He did not think a comparison between it and pyloric spasm very helpful, as the cause of the latter was unknown.

Mr. LOCKHART-MUMMERY said he was interested in the fact that the pyloric tube had been shown to curl up in the œsophagus. Investigations had shown that this was what happened when long slender tubes were used as with long rectal tubes in colonic lavage.

Dr. LANGMEAD, in reply, agreed that the cause of hypertrophic stenosis of the pylorus was unknown, and that no advance was made by comparing the condition under discussion with it. He intended merely to draw the comparison, thinking that the explanation of one, when forthcoming, might be true for the other. In answer to Dr. Weber, he thought that the diagnosis of the disorder by X rays with the exclusion of organic cause during life by œsophagoscopy was exceptional in so young a patient, and that the occurrence of symptoms within a few hours of birth was very rare.

Dr. R. C. JEWESBURY showed the Liver of a case of Cirrhosis in a child previously exhibited before the section and ascribed to alcohol. The cirrhosis was of the usual multilobular form, but the nodulation of the surface was not pronounced, and large areas were smooth.

Dr. E. A. COCKAYNE showed a case of

(?) *Raynaud's Disease and Necrosis of Nasal Bones.*

The patient was a boy aged 1 year and [illegible] months, who appeared normal up to the age of 3 weeks. At this age a bluish area appeared on the left hand, which was swollen. According to the mother, the centre of this came out as a "core." Shortly after this the child had an attack of diarrhœa and sickness. At 10 weeks there was a greenish-yellow offensive discharge from the nose, which had continued on and off ever since. The child was seen first at the age of 5 months. The bridge of the nose was very depressed and there was an offensive discharge. The fingers were blue and cold, with small septic areas on them, and the nails were deformed, and continued in this condition all through the summer. The child was fairly well nourished, but very susceptible to cold. There was a swollen red area just in front of the right ear, and a blue cold area with a necrosed centre in the middle of the cheek. The hands were blue and cold, and the child gave evidence of a good deal of pain in them. The fingers were thin, the skin blue and glossy, the nails deformed. Over the finger tips and nails there was much dry thickened epithelium. There was limitation of passive and active movements at the interphalangeal joints. The legs showed a blue mottling, and there were small scars on both legs. The toes were normal, but cold and blue. While under observation the finger tips had been almost black on two occasions, and on the dorsum of the left hand there had been a blue area with a dark centre of necrosed tissue. The Wassermann reaction in both mother and child proved negative on two occasions, in April and in July, 1919.

Dr. WEBER regarded the case as one of sclerodactylia, of which disease the early signs were the phenomena of Raynaud's disease. It should be sharply distinguished from Raynaud's disease proper.

Dr. SUTHERLAND said that Raynaud's phenomena should not be regarded as a disease; the condition sometimes improved by antisyphilitic treatment. In view of the nasal condition, he would not be deterred from advising antisyphilitic treatment by a negative Wassermann reaction.

Dr. COCKAYNE, in reply, said that antisyphilitic treatment had been employed, but without benefit.

Polio-encephalitis Affecting the Mid-brain.

Dr. J. C. SPENCE showed for Dr. F. J. POYNTON a case of Polio-encephalitis affecting the Mid-brain, with Involvement of the Pyramidal and Extra-pyramidal Systems.

The patient, a girl, aged 10 years, was a healthy, active child before the onset of the illness. The first symptoms arose in July, 1919, when she lost the use of her right arm. Later in the day her face became affected and appeared "to be twisted to the right." The child's mother stated that there was no accompanying loss of consciousness, vomiting, or signs of an acute feverish condition, and that she complained only of slight headache and loss of appetite. During the next few days she lost the use of her right leg, left leg, and left arm in turn, and her speech became affected. Within a week of the onset of the symptoms she was confined to bed unable to move her limbs, which were stiff and rigid, and spoke only in almost unintelligible monosyllables. She was very quiet and depressed, though subject to frequent emotional outbursts. She lay in this condition for a month before any change appeared. This was first seen in improvement in her speech and in return of the power to use her left arm, and was progressive up to her admission to hospital in October.

On admission she showed spastic paralysis of the right arm and leg. The arm was in a position of flexor rigidity, and there was a coarse tremor of the right hand. The tremor, absent during sleep or when the body was in a position of rest, was immediately brought into play by any emotional disturbance, attempt to speak, or carry out any muscular effort. On the left side the arm could be moved, but the movements were wildly ataxic, the leg was rigid, but there was slight movement at the hip- and knee-joints. Speech was slow, stuttering, and hesitating. There was no squint or ptosis. The pupils were equal, reacting normally to light and accommodation. The face was expressionless, and when the child was emotionally disturbed the loss of expression became more marked on the right side; but there was no true facial nerve paralysis. The right plantar reflex gave an extensor response, and there was an increased knee-jerk and ankle clonus on the right side. The left plantar reflex gave a more indefinite extensor response, difficult to elicit. There was no ankle clonus on the left side; the left knee-jerk was increased. No changes in sensation were detected. The fundi oculi were normal. The cerebro-spinal fluid was clear, sterile, and without any increase in cells or albumin content. Wassermann's reaction was negative. No abnormal physical signs could be detected in the heart or lungs. The urine was normal.

During the past two months the clinical picture had changed a little. While the right hemiplegia had persisted, unaltered except for a slight return of movement in the right leg and right arm, there had been distinct improvement in the tremor of the right hand, the ataxia of the left arm, the speech, and the control of the emotions. The ataxia, which on admission was very wild, had almost disappeared. She was no longer subject to the sudden and inexplicable emotional changes. A careful look-out had been kept for any signs of ocular paralysis. In December there was slight inequality of the pupils for about two weeks. During the past three weeks there had been a fine lateral nystagmus, but there had been no signs of third, fourth, or sixth nerve involvement.

Dr. W. MITCHELL SMITH said that if considerable deformity were to be avoided the limbs should be kept in a position preventing muscular relaxation of the affected muscles, and should not be removed at all from the necessary apparatus.

TUBERCULOSIS SOCIETY.

AT a meeting of this society held on Jan. 19th Dr. H. DE CARLE WOODCOCK, the President, being in the chair, Sir HENRY GAUVAIN gave an address upon

Surgical Tuberculosis Considered from the Standpoint of the Tuberculosis Officer.

Sir Henry Gauvain said that he hoped that he would not be thought presumptuous if he criticised the lack of interest which was shown by tuberculosis officers in this branch of tuberculosis work. Perhaps this arose in part because of the name, and because the public were accustomed to think that the subject came entirely into the realm of the surgeon and should not be treated by the specialists in tuberculosis. This idea was quite wrong. Although there were 10,000 deaths every year in this country from surgical tuberculosis, he had been struck, when he began practising, that there was not a single man who devoted his whole time to this form of the disease. He hoped that now that tuberculosis officers were appointed all over the country they would take an active share in this branch. The disease was caused by the same organism and called for similar methods of treatment, with additional local measures. The tendency of the operating surgeon was to treat the local trouble and then to dismiss the patient without undertaking general treatment. This was a mistake. In no variety of tuberculosis is the prognosis so good as in the surgical forms when adequate treatment is adopted, and operative interference is less and less required in proportion as other measures are timely. The tuberculosis officer is, however, of the greatest importance, because upon him devolves the work of early diagnosis and the after-care, both of which are so essential if success is to be attained. The need for surgical interference had become less and less, and at Alton not a single joint had required excision for some time past. There were three amputations during the last year, in all of which the necessity arose from sepsis introduced by previous surgical interference. Preservation of parts was aimed at, and not removal. Speaking of differential diagnosis, Sir Henry Gauvain said that he had had cases sent to Alton as spinal caries which proved to be rickets or scoliosis, congenital malformation of the spine, syphilitic disease of the spine, typhoid disease of the spine, or osteomyelitis. In hip disease the chief fallacies were pseudocoxalgia and streptococcal disease, or osteomyelitis of the femur. Pseudocoxalgia could be recognised by limitation of abduction and rotation, slight shortening, and some spasm. It caused some destruction of the end of the bone, with flattening of the head, and periostitis of the neck with increase of cartilage. There was no limitation of flexion, which was an early sign in tuberculous disease. The prognosis was good. In septic diseases the onset was almost invariably sudden, whereas in tuberculosis it was insidious. No doubt most cases of tuberculous bone disease needed treatment in a special institution, but the after-care should be taken over by the tuberculosis officer. Such questions as when to discard a splint, when to resume ordinary life, how much exercise to take, what occupations to take up, when a case may be considered quiescent, are all to be answered in the after-care period. Intensive post-graduate courses had been started at Alton, each lasting ten days, with lectures and facilities for practical work, and Sir Henry Gauvain invited tuberculosis officers to avail themselves of the opportunity afforded. There should, he said, be time and opportunity given by the authorities for such special courses of study. He also suggested that the establishment of a diploma in tuberculosis should receive consideration on the lines of that in radiology and electrology recently granted by Cambridge University.

A series of lantern slides were thrown upon the screen showing the hospital at Alton, the work carried on there, and the results of treatment in typical cases. A short discussion ensued, and the following resolution was passed:—

That representations be made to the various examining bodies with a view to the establishment of a diploma in tuberculosis.

THE MEDICO-LEGAL SOCIETY.

A MEETING of this society was held on Jan. 15th at 11, Chandos-street, W., Mr. R. HENSLOWE WELLINGTON, the President, being in the chair.

Proposed Formation of a Parliamentary Committee.

A proposal of the Council to the effect that a special Parliamentary Committee be formed, was discussed, and supported by Earl RUSSELL and other members. It was agreed unanimously that such a committee should be appointed to watch legislative proposals having medico-legal importance and to report to the Council and take such steps as may be found necessary. The Council was directed to take the necessary steps to form the committee.

Mr. DOUGLAS COWBURN read a paper entitled,

Some Experiences in a Coroner's Court.

After referring to the wealth of medico-legal material of enormous importance and great interest that becomes lost, for general purposes, owing to the inaccessibility of coroners' records, he detailed a number of cases presenting unusual if not unique features. A fatal case of poisoning by permanganate of potash in solution was narrated as of extreme rarity, as also a case of death from "status lymphaticus" without any ascertainable precedent fright, shock, or injury. The question was raised of the frequency of status lymphaticus as a cause of death apart from the administration of anæsthetics. Mention was made of two deaths during the administration of nitrous oxide gas, of one in which, while A.C.E. mixture was being given, an œsophageal varix ruptured, causing death by asphyxia from inhaled blood. It was pointed out that athletic alcoholics appear particularly unsuitable persons for certain anæsthetics and that the proportion of persons dying during the administration of anæsthetics and found to be the subjects of malignant disease was very notable. Mr. Cowburn, speaking as a coroner, emphasised: (1) the necessity always for a post-mortem examination; and (2) the fact that, especially in cases of death during treatment, relatives of the deceased were invariably satisfied when such an examination is made by an independent expert.

Mr. A. M. M. FORBES, also speaking as a coroner, agreed that post-mortem examination is necessary, but insisted that the "post-mortem" must be a "good" post-mortem.

Dr. F. G. CROOKSHANK alluded to one of Mr. Cowburn's cases—that of a lady who died, ten days after a fall, of intestinal obstruction unrelieved by operation, and of which the cause remained unexplained by a post-mortem examination—as probably belonging to that group of cases discussed by him, under the name of "delayed shock," in the Transactions of the Society for 1912–13 (Vol. X.). A number of such cases had from time to time been reported, but their occurrence.

although of great medical and legal importance, had been persistently overlooked.

Dr. B. H. Spilsbury very cogently supported Mr. Cowburn in regretting the loss of so much valuable material for teaching purposes, drew attention to the attempts made by the society to form a museum, and referred to the remarks made by the President in his recent address on the importance of founding the teaching of forensic medicine upon the wealth of experience afforded in London, though almost neglected.

Mr. A. S. Morley, speaking as an anæsthetist, said that in some cases it appeared to him that the surgeon rather than the anæsthetist should be summoned before the coroner in cases of death during operation.

The President, in expressing the thanks of the meeting to Mr. Cowburn for his valuable and instructive paper, referred to a dictum of the late Sir Frederic Hewitt concerning the responsibility always attaching to anæsthetists in the case of death during administration of an anæsthetic, and Mr. Cowburn replied.

London Association of the Medical Women's Federation.—A meeting was held on Jan. 20th at 11, Chandos-street, W., Dr. Emily Flemming, the President, being in the chair.—A discussion on Infant Welfare Centres was opened by Dr. Flora Shepherd, who described the organisation of such work. She said that in order to be successful each centre should be under the administrative control of the medical officer of health, and that the medical officer of the centre should send him monthly reports of the work done. Each centre should be responsible for all the work required, so as to avoid overlapping by health visitors sent by different authorities. No centre should be more than 20–30 minutes' walk from the homes, and not more than 30 children could be satisfactorily attended to in one session of two and a half hours. In a well-organised district there should be an attendance of 60–70 per cent. of all the births notified. She said that antenatal consultation should be entirely separate from infant welfare consultations.—Dr. Helen Robertson read a paper on Natural Feeding of Infants. She referred to some of the causes of inability to feed infants, and described how they could be helped by treatment at welfare centres. Among the points mentioned were nasal obstruction in babies, depressed nipples in the mothers, and bad health due to dental disease. She also referred to the fact that some babies got on well when fed only four times in 24 hours, and said that it was generally better not to wake them for feeding.—Dr. Alice King then read a paper on Artificial Feeding of Babies. She said that no rules could be given, as cases had to be judged on their own merits. She advised fresh cows' milk, boiled, and in estimating quantities she considered weight and size of much more importance than age. Fresh fruit juice, raw or underdone meat juice and cream should be added from an early age. Dried milk should be used as a routine when hygienic or atmospheric conditions were unfavourable. Dr. King found that dried milks were better tolerated than ordinary cows' milk by infants with digestive powers below the average, especially when prepared by the Béverat-de-Neven, as compared with the Hatmaker process. She preferred plain, desiccated milks, which could always be modified as required to those modified in preparation, such as glaxo, although many infants did well on the latter. Evidence showed that the antiscorbutic and antirachitic properties of milk were not decreased to any great extent by desiccation, but fresh fruit or vegetable juices should invariably be given with a dried milk diet.—A general discussion then followed, in which Dr. Ethel Bentham, Dr. Esther Harding, Dr. Clara Fitter, Dr. Janet Campbell, Dr. Grace Briscoe, and Dr. Octavia Lewin took part.

Devon and Exeter Medico-Chirurgical Society.—The annual meeting of this society was held at the Royal Devon and Exeter Hospital on Jan. 15th, Mr. R. Pickard being in the chair.—The following cases and specimens were exhibited:—Dr. R. V. Solly: A case of Oriental Sore in which various methods of treatment were mentioned. Also microscopic specimens of Anthrax from recent cases, Vincent's Angina, and a section of Liver from a girl, aged 19, who for many years had suffered from slight jaundice, with some cyanosis and attacks of pyrexia. The girl died from streptococcic septicæmia (proved by blood culture), and post mortem general peritonitis was found, with liver showing a nodular cirrhosis with marked bile staining of liver substance; microscopically there was a monolobular and intercellular cirrhosis with many new-formed bile ducts.—Mr. B. Dyball showed skiagrams of Perthe's Disease (osteochondritis juvenilis deformans) and of Rejuvenation of Diaphyses Tibiæ in a case of tubercular disease; a specimen of Lipoma of Cord and Varicocele, where the veins contained numerous phleboliths; a specimen of Tibia, which at first was diagnosed by a well-known London pathologist as osteitis fibrosa, but later the patient died from spindle-celled sarcoma, which was no doubt the original disease; a specimen of Carcinoma of Kidney and one of Congenital Cystic Kidney removed by operation.—Mr. A. C. Roper showed specimens of (1) Ruptured Tubal Gestation removed by operation, with well-formed fœtus; (2) specimens of (*a*) Adeno-carcinoma of Body of Uterus, and (*b*) Squamous Epithelioma of Cervix; (3) Renal Calculus with skiagram; (4) a completely detached Calcareous Fibromyoma of Uterus about the size of a hen's egg.—Mr. A. L. Candler showed a temperature chart of a case of Suppuration of Knee-joint, successfully treated by pumping ether into the joint.—Mr. N. F. Lock showed: (1) Specimen of Synovial Membrane, showing formation of many loose bodies. (2) Saccular Traumatic Aneurysm of Superior Profunda, producing paralysis of ulna, musculo-spiral, and musculo-cutaneous group of nerves. The aneurysm was removed intact and showed partially organised clot. (3) Specimen of Traumatic Aneurysm of Posterior Tibiæ also removed by operation.

Election of Officers.—The following officers for the ensuing year were elected:—President: Mr. B. Dyball. Vice-President: Mr. P. H. Stirk. Council: Dr. J. S. Steele Perkins, Mr. R. Worthington, Dr. C. N. Lovely, Dr. G. H. Hanna, Dr. Bertha Mules, and Dr. W. H. Date. Treasurer: Mr. R. Pickard. Secretaries: Dr. R. V. Solly and Dr. G. L. Thornton. Auditors: Dr. F. A. Roper and Mr. A. L. Candler. The following were elected members of the society: Dr. H. A. Cookson, Dr. Barrow, and Dr. J. Allen.

Edinburgh Medico-Chirurgical Society.—At a meeting of this society held in Edinburgh on Jan. 21st Dr. John Eason read a paper entitled "An Inquiry Regarding the Age and Sex Incidence of Pernicious Anæmia," and quoted first the views of various authorities to show that it was generally held that the disease was one mainly met with in middle life. He pointed out a number of defects in all available statistics, and particularly that no account was taken of the age-distribution of the population. Eliminating the various fallacies, a careful analysis of 600 cases treated in Edinburgh hospitals during the last 21 years showed that the incidence of the disease steadily increased with age, and was distinctly more common in females than in males. In men the relative maximum was reached at the age of 69, whereas in women it was attained about the age of 50, the figure for later years remaining about the same.—Dr. John D. Comrie read a paper on Scurvy, based upon cases observed while acting as consulting physician to the British Forces in North Russia. After a brief historical note, the lecturer stated that scurvy was prevalent in North Russia amongst the inhabitants every year during the winter months, and that the favourite treatment there adopted was the administration daily of two pints of fresh milk. Many cases were to be seen in the civil hospitals and among Russian prisoners, but the disease was very rare amongst the British troops. A careful analysis of cases showed that approximately 4·7 months of defective diet were necessary before the disease made its appearance, but that this period might be considerably shortened by other diseases. Of all symptoms, hæmorrhage was the commonest, particularly the purpuric rash on the legs. In half the cases also there were deeper hæmorrhages into the muscles, especially over [illegible] exposed to pressure. Bleeding into a joint provided one of the most troublesome features of the disease, and was particularly prone to be followed by the formation of adhesions. Depression, pain in the head and legs, and the characteristic condition of the mouth were other prominent symptoms. Sudden death was not at all uncommon. Effusion into the pleura was frequent; brown atrophy of the heart was a characteristic post-mortem finding. The blood changes were those of a secondary anæmia, with a lymphocytosis. Under suitable treatment the hæmorrhages became rapidly absorbed and complete recovery (with the exception of contractures) usually took place in about a month. Careful investigation of various vitamine-containing articles of diet showed that cases recovered most rapidly which were treated with soured milk, while fresh meat and fresh lime-juice also gave excellent results. Preserved lime-juice did not prove satisfactory.—Mr. J. W. Struthers read a paper on Perforated Gastric and Duodenal Ulcer, quoting from personal experience some 90 recent cases. Under present conditions he said that the mortality in cases of perforation was approximately about 20–25 per cent. In a large proportion of those observed symptoms pointing to ulcer had been present over a long period, but in others the onset was sudden or the antecedent symptoms very mild. Apart from the danger of perforation, ulcer was also attended with the possible sequence of pyloric stenosis or gastric cancer. Discussion was invited as to whether more cases should not be submitted for surgical treatment in the early stages than had hitherto been customary, as it was only by treatment prior to perforation that a lessened mortality could be expected.

Reviews and Notices of Books.

PHYSIOLOGICAL PRINCIPLES IN TREATMENT.

Fourth edition. By W. LANGDON BROWN, M.D., F.R.C.P. London: Baillière, Tindall, and Cox. 1919. Pp. viii. + 427. 7s. 6d.

IT is an axiom—or a dogma—that medicine is the better for association with physiology. But different opinions are held as to the method of association. Some physiologists have clamoured for perpetual access to the patient, forgetting the human complexities of the art of medicine and surely unmindful of the true progress of their science. Others have not been content to throw physiology neck and crop into the technological mill of the wards and would have those parts of physiology which are obviously germane to medicine taught and brought into practical use by the clinicians. The question is, indeed, part of the debate as to whether the segments of the medical curriculum are to overlap upwards or downwards. It is much to be hoped that the introduction of whole-time teachers of medicine and surgery in the London schools will finally demonstrate the superiority of the latter arrangement, and will create a body of clinical teachers with the necessary leisure to keep themselves properly acquainted with the progress of natural knowledge and thus desirous to apply to practice such parts of it as they find useful. But medicine and surgery after all consist of clinical problems which must be solved by clinical methods.

In the present volume Dr. Langdon Brown shows how the desirable combination of physiological knowledge and clinical practice may be achieved under less favourable conditions than we may now anticipate will prevail. Four editions in 11 years prove that his book has been acceptable and useful, and the atmosphere of practical medicine which he creates out of physiology is most successful. The work does not pretend to be a complete systematic treatise; it is really a series of essays, grouped on a clinical rather than a physiological basis—a plan which has the immense advantage that each chapter is plainly the result of practical personal experience. The physiologist could find a good many small matters for debate if he were on the look-out for them; how, for instance, constipation can raise blood pressure "mechanically" (p. 359), how potassium iodide ferrets out the toxins which lurk in lymph spaces (p. 360). But he would also find a wealth of interesting clinical experience which, if not altogether based on the sort of evidence he is accustomed to ask for, is not the less credible; as the author points out, observations made in the laboratory are not necessarily more correct than clinical evidence. The present edition has been revised throughout; the chapters on diabetes and vitamines are mostly new, and it is not the author's fault that acidosis has jumped off on another track (and perhaps run away altogether) since he wrote his account of it.

GERIATRICS.

A Treatise on Senile Conditions, Diseases of Advanced Life, and Care of the Aged. By MALFORD W. THEWLIS, M.D. With introductions by Dr. A. JACOBI and Dr. I. L. NASCHER. London: Henry Kimpton. 1919. With 13 illustrations. Pp. 250. 15s. net.

THIS book differs considerably from the treatise by Dr. Nascher, the second edition of which was reviewed in THE LANCET of August 9th, 1919. Each chapter forms a kind of clinical lecture in itself, plentifully illustrated by short notes of actual cases and written in an easy style, forming, it may fairly be said, interesting and even cheerful reading for the busy practitioner. The chapter (III.) on "The Value of Age" refers to excellent work done by many famous persons, past and present, when well advanced in age. The headings of two other chapters are respectively: "Work for the Aged" and "Keep Senile Cases Out of Bed." These two headings give a clue to much that the author tells us in regard to the management of the aged. We cannot better illustrate his method than by quoting more or less at random from the text: "*Staying in the harness* is the real secret of bringing about the best results from our aged minds. ...... The responsibility of work helps them beyond measure." "We should provide some work for our aged friends and relatives. ...... It is wrong to think that, because a man has worked hard all his life, he should not work any more. ...... Never change an old person's mode of living." The amount of fat required in the diet in old age is apparently but little less than that required in maturity, whilst the protein and carbohydrate factors are much less. "An excessive amount of salt is detrimental to the kidneys, but the spices, acid, and sugar are beneficial in old age." In senile bronchitis "the discharge, no matter how profuse or fœtid, should not be checked, as this may cause paralysis and suffocation." "Aged persons should avoid retaining urine too long," and when they empty the bladder they should take care to do so as thoroughly as possible, even if thoroughness necessitates the expenditure of a few extra moments of time. The author quotes the saying, "In maturity nature tends to cure, while in senility nature will kill." He refers to a fatal case in which he thinks that an attack of cardiac pain was mistaken for gastritis, and in which nitroglycerine might have saved the patient's life. The use of alcohol as a drug is commended in the following words: "Alcohol forms one of our best weapons in treating the aged, especially when there is much debility. I usually administer it to its full physiological action—that is, until the cheeks become red and the mouth becomes parched. In pneumonia, or even in some forms of chronic nephritis where there is extreme weakness, it is of value." The habit of taking a certain amount of alcohol daily should, according to Dr. Thewlis, like other old habits, not be tampered with in aged persons. We suggest that the danger of cutting off morphine altogether in senile patients who are accustomed to it might have been referred to here.

Here is another piece of counsel. "We must not forget that it is not always the object in the aged to heal or correct an abnormality. Frequently, as with fistula, nature seems to use the disease to rid the system of some toxin, and as long as it is not disturbed they remain in good condition." In regard to operations on senile patients the author again urges the importance of getting them out of bed as soon after the operation as possible. His keynote in geriatrics is: "Keep senile cases out of bed." Readers need not agree with all the author's views, but all who study the book will be compelled to recognise its shrewdness and practical wisdom.

THE PATHOGENIC BACTERIA AND PROTOZOA.

A Text-book for Students of Medicine and Physicians. Ninth edition, revised. By JOSEPH MCFARLAND, M.D., Sc.D., Professor of Pathology and Bacteriology in the University of Pennsylvania, &c. London and Philadelphia: W. B. Saunders Company. 1919. With 330 illustrations, a number in colours. Pp. 858. 21s.

LIKE other excellent and now numerous text-books on bacteriology which have appeared in America during the past twenty years, this work is distinguished by definiteness of aim and methodical and systematic treatment of subject, while the good style in which it is produced is also what we have been led to expect. The purpose of this book is set forth in the title, and is kept rigidly in view. The author avoids the danger of the incorporation of excessive material, and has indeed reduced somewhat the size of the book. The particular features and merits of the book have been fully set forth in reviews of previous editions, so that, as there appears to be no such considerable change in the present volume as occurred when the pathogenic protozoa were added to the subject matter of the book, it suffices to say that the work satisfactorily fulfils the purpose for which it was written. The section on anterior poliomyelitis, which was somewhat inadequate in the 1912 edition, now contains Flexner and Noguchi's cultural results, but little if any work done since 1913 finds a place. The chapter on relapsing fever groups together the European, African, and other forms, and gives a good general view of the subject, while Leishman's observations, formerly omitted, are now included, and there is an interesting appendix describing the vectors of the spirillum. The work on infective jaundice and on rat-bite fever is well epitomised. The chapter on yellow fever will probably require considerable alteration in the next edition, as the recent work of Noguchi, if confirmed, will revolutionise our knowledge of the ætiology of the disease. The anaerobic infection of wounds has become of great importance during the war, and under the heading of gaseous œdema some of the recent work on the organisms found in this condition has been incorporated, but there does not appear to be any notice of the effect of prophylactic treatment of tetanus on the character of the subsequently developing disease, nor of the experience gained with regard to vaccination in typhoid, cholera, and dysentery. The section on influenza shows no influence of recent experience, but the results of this are perhaps too uncertain to be incorporated in a text-book.

Though this edition is possibly not brought up to date as completely as it would have been if produced in quieter times, this detracts but little from its merits as a text-book, and it can be confidently recommended to the student.

PSYCHIATRIC-NEUROLOGIC EXAMINATION METHODS.

With Special Reference to the Significance of Signs and Symptoms. By Dr. AUGUST WIMMER, Director, St. Hans Hospital, Roskilde, Denmark. Authorised translation by ANDREW W. HOISHOLT, M.D., Professor of Psychiatry, Leland Stanford Junior University, San Francisco, California. London: Henry Kimpton. 1919. Pp. 177. 10*s*. 6*d*. net.

THIS slender volume is intended to be a guide to the student and practitioner for his examination of nervous and mental cases. It contains a more or less systematised semiology, on a small scale, of the nervous and mental affections of the commoner sort, arranged by mechanisms; on the nervous side we have external habitus, organs of sense, speech, motor disturbances, abnormal movements, paralyses, sensation, reflexes, and so on; on the mental, attention, apprehension, orientation, sense-deception, fallacious ideas, imperative ideas, memory—to name but a few of the sections. It is really becoming a difficult matter to compress the normal and pathological physiology of the nervous system, and the normal and pathological psychology of the mind, into a few pages, though the author has managed his task with some degree of success. Of the few (nine) diagrams which the book possesses some are altogether useless; we feel many more should have been included, or none at all. Occasional unfamiliar expressions in the translation pull the English reader up; the cervical enlargement is called the "cervical intumescence," and "baroque physical influences" seem to have wandered in from architecture.

SWANZY'S HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT.

Twelfth edition. Edited by LOUIS WERNER, M.B., F.R.C.S.I. London: H. K. Lewis and Co. 1919. With nine coloured plates and 273 illustrations. Pp. 671 + xviii. 22*s*. 6*d*. net.

To keep a standard text-book, such as this, up to date without unduly adding to its bulk is a feat which has been very successfully accomplished by the editor. It contains nearly all that it is good for a student to know until he begins to find things out for himself. Moreover, it is no patchwork such as some text-books which run through many editions are apt to become, but can be read through usefully and pleasantly. Taking for granted a knowledge of the anatomy and physiology of the normal eye, the book starts with a short chapter on optical structure and functional examination, and another on the use of the ophthalmoscope. The student is recommended to read these and the chapters on elementary optics and refraction immediately on joining the ophthalmic hospital or department. The rest of the book gives a clear account of the diseases which affect the various parts of the eye, including the ocular symptoms liable to accompany focal and diffuse disease of the brain and of the spinal cord. The weak side of the book concerns treatment. We look in vain for needed information on the substitutes for atropine, on the different forms of silver salts, and on the action of local anæsthetics. A short chapter on the therapeutics of the eye would be valuable in future editions.

The chief improvements in this edition over former ones are in the chapter on diseases of the cornea and in the account of the exact knowledge of the localisation of lesions of the occipital lobe, gained through the experience of the war. And here some of the more difficult points might, we think, have been omitted or accompanied by references to other authorities. For instance, the so-called spiral fields of neurasthenia should not now be mentioned without a reference to the work of A. F. Hurst, who attributes them entirely to suggestion. Again, it may be perfectly true to say that night-blindness is a result not of defective light sense, but of imperfect adaptation; but this statement conflicts with other authorities, and should therefore be made, not dogmatically, but with some indication of where a reasoned argument on the subject may be found. These, however, if defects, are minor ones, and we can whole-heartedly recommend the book to students. The coloured illustrations drawn by the editor are a valuable feature.

BING'S COMPENDIUM.

Kompendium der Topischen Gehirn- und Rückenmarksdiagnostik. By ROBERT BING, a. o. Professor an der Universität Basel. Vierte neu durchgesehene Auflage. Berlin: Urban and Schwarzenberg. 1919. Mit 97 zum Teil mehrfarbigen Abbildungen. Pp. 235. M.16; geb. M.20.

Professor Bing's well-known compendium is much improved from its second edition, which we reviewed in 1911. It is larger and more inclusive, while its features of clarity of expression and of diagrammatic representation are as noticeable as before. Going over the volume critically we meet with several indications that the author is not abreast of the most recent neurological research in countries outside Central Europe. Professor Bing cites the old criteria of total transverse lesions of the cord without apparently recognising that this is a chapter which war experience has completely rewritten. His description of the pathological reflexes shows that he fails to regard them as parts of mesencephalo-spinal mechanisms revealed by interference with cortico-spinal function—a point of view which is not merely more instructive, but calculated to bring them all into line in a way never hitherto attempted. He speaks of spinal automatisms, as we know them, as "flight or defence reflexes," an expression already out of date. The surprising attitude is adopted that tremor, chorea, and athetosis are the result of irritation of the pyramidal path in the crus—a definite error. Professor Bing describes a lenticular syndrome consisting of contralateral paresis in face, arm, and leg, exaggerated deep reflexes, difference in the pupils, and atrophy of the opposite limbs and some sensory changes. Whatever this syndrome may be, it is not that of the lenticular nucleus. He states that bilateral arterio-sclerotic lesions of the basal ganglia cause permanent incontinence of urine with an automatic bladder, but it seems incredible he should be unaware of much less debatable symptoms associated with such a pathological basal lesion. He regards xanthochromia of the cerebro-spinal fluid as a sign of extramedullary spinal tumours, yet it occurs in other quite different spinal conditions.

Apart from the revision which these and other criticisms may justify, Professor Bing's compendium will be found reliable and useful as a practical aid to neurological diagnosis.

JOURNALS.

Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIII., Nos. 3 and 4. Cambridge University Press. Pp. 147–271. 10*s.*—Vaso-motor Centres. Part II.: Observations on the Action of Strychnine, by J. N. Langley. The experiments were made on decerebrate curarised cats. Strychnine is for convenience spoken of as causing a rise of blood pressure by stimulating nervous centres, although it is still an open question whether it stimulates or only increases the responsiveness of centres to external stimuli. The spinal cord was stimulated by placing electrodes flat on the surface of the cut lower end of the cord. Currents rather strong to the tongue were required to produce a marked rise of blood pressure. Strychnine up to a certain amount increases the rise of blood pressure caused by submaximal stimulation of the spinal cord. Above this small amount it causes a decrease of the effect of cord stimulation, but complete absence of stimulation is not caused by 60 mg. The effect of strychnine on the bulbo-spinal animal closely resembles its effect on the spinal animal. The maximum rise of blood pressure is caused by a small amount; after this amount has been given, further injection causes a slight and decreasing rise. The differences are, in the main at any rate, due to the higher central tone and better circulation in the bulbo-spinal animal; the later injections of strychnine cause a much more marked primary fall of blood pressure and partial recovery. The form of the blood-pressure curve with injections of strychnine, after the first, depends on the balance of several factors—viz., the remaining excitability of the central vaso-constrictor centre, the degree of paralysing action on central tone, and the degree of peripheral action, which is probably a weakening of the heart beat. Central vaso-dilator stimulation plays little part in the form of the curve, though in the dog there is with the first injection more or less flushing of the bucco-facial region. Strychnine causes an apparently maximum rise of blood pressure after excision of the suprarenal gland and it causes some rise of blood pressure after removal of the abdominal viscera, and it is inferred that its action on cutaneous vessels, apart from local spinal areas, as on visceral vessels, is one of constriction. Strychnine does not convert vaso-inhibitory into vaso-constrictor impulses. Strychnine after a large dose of ergotoxin causes a trivial fall of pressure, probably of peripheral origin. In anæsthetised animals strychnine, after causing a primary fall, may cause a slow rise of blood pressure above the original height, suggesting stimulation above the level of the spinal bulb.—The Neutrality of the Blood, by W. M. Bayliss. The author uses neutral red as an indicator for the determination of the hydrogen-ion concentration of arterial blood. This substance, within certain degrees of ion-concentration, gives a regular series of changes in tint from crimson to yellow. Intravenous injection of acid in sufficient quantity to neutralise half the bicarbonate in the blood does not increase the hydrogen-ion concentration of the plasma. The chief mode of compensation is by increase in pulmonary ventilation and consequent decrease of carbon dioxide in the blood. Renal excretion of acid and ammonium production in the liver do not appreciably come into play in short experiments. Injection of alkali is not so easily neutralised. The chief agent in this case appears to be the excretion of alkaline urine. The proteins of the plasma play no appreciable part in the maintenance of neutrality between the limits of hydrogen-ion concentration possible in the living organism. No evidence was obtained either that sodium bicarbonate, serum-proteins, or both together convey carbon dioxide from the tissues to the lungs. Thus the only function of sodium bicarbonate in the blood is to regulate the hydrogen-ion concentration, while, under normal conditions, the only function of the proteins is to give a colloidal osmotic pressure and a moderate degree of viscosity to the blood.—Experiments on Acclimatisation to Reduced Atmospheric Pressure, by J. S. Haldane, A. M. Kellas, and E. L. Kennaway. The characteristic physiological effects of lowered atmospheric pressure at high altitudes were proved by Paul Bert to be due, not to lowering of the mechanical pressure of the air, but solely to lowering of its oxygen pressure and consequent inefficient oxygenation of the blood. The present experiments were undertaken in connexion with a projected expedition to the higher peaks of the Himalayas. Preliminary experiments in a closed chamber were made in order to observe the effects of exposure for some time to a pressure of half an atmosphere on respiration, pulse, cyanosis, mental and sensory symptoms, capacity for muscular work. After half an hour there was practically no discomfort. The symptoms of the anoxæmia in these and more prolonged and varied experiments are described and discussed. These symptoms appear to be less marked than when the alveolar oxygen pressure is reduced to the same extent by simply reducing the oxygen percentage in the air breathed. The severity of the symptoms is not always proportional to the blueness of the lips and face, and particular symptoms vary a good deal. During anoxæmia there is a very marked diminution in the acid excreted by the kidneys and a less marked diminution in the excretion of ammonia. Partial acclimatisation to reduced atmospheric pressure was obtained by discontinuous exposure to progressive diminution of pressure; but this partial acclimatisation was apparently due almost entirely to increased inward secretion of oxygen by the lung epithelium. A mere increase in respiration or circulation cannot relieve the anoxæmia, and the conclusion is drawn that the supposed slight acidosis of acclimatisation is in reality only an incomplete compensation of a continued alkalosis due to the increased breathing caused by the anoxæmia.—The Thymus and Tetany, by T. J. Honeyman. Extirpation of the thymus along with the parathyroid in the guinea-pig does not modify in any way the onset of symptoms of tetania parathyreopriva, and it appears unlikely that the thymus secretes or contains any substance capable of producing tetany. —The Hyperglycæmia of Asphyxia and the Part Played therein by the Suprarenals, by C. H. Kellaway. It has recently been denied that the suprarenals play any part in producing the hyperglycæmia of asphyxia. Most of the observations were made on non-anæsthetised cats in which the preferential dilatation of the pupil was used as an index of the output of adrenalin and the degree of asphyxia carefully regulated. It was found that the acceleration of adrenalin secretion and the hyperglycæmia caused by asphyxia both depend on a complex of effects. These results are discussed, and the author concludes that they are mainly due to lack of oxygen, excess of CO_2 playing at most a subsidiary part. In both cases the main effects, in anoxæmia of ordinary severity, are due to action on the central nervous system, the splanchnic nerves providing the paths of impulses. When the splanchnics are cut severe anoxæmia still elicits both effects by peripheral action. The increase of blood sugar is only in part caused by the accelerated output of adrenalin.—Carbohydrate Metabolism in Ducks, by G. B. Fleming. Respiratory exchange is influenced by the diet in the same way as in mammals. Injection of adrenalin or removal of the pancreas produces hyperglycæmia. Within half an hour after the injection of adrenalin the respiratory quotient is raised and during the next half hour it falls. The rise in the respiratory quotient after the injection of adrenalin in the fasting animal indicates a mobilisation of carbohydrate, but the persistence of hyperglycæmia after the R.Q. has fallen suggests that adrenalin may cause inhibition of the pancreatic internal secretion. Neither ligature of the portal veins, nor excision of the pancreas, nor the combination of these procedures causes a rise in the R.Q., even when glucose is administered. The evidence indicates that in pancreatic diabetes the tissues are unable to utilise carbohydrate rather than that the liver is the sole seat of metabolic error.—Action of Substances Influencing the Carbohydrate Metabolism in Experimental Beri-beri, by

Casimir Funk. Based on the assumption that the anti-beri-beri vitamine plays an important rôle in the carbohydrate metabolism, a series of substances known to influence this metabolism were investigated. Their action on the blood sugar, liver, glycogen, and amino-nitrogen of the blood was studied, as well as their influence on the onset of beri-beri, duration of life, and loss of weight when administered to pigeons fed on polished rice. Glucose produced practically a disappearance of glycogen, a diminution of blood sugar both in normal controls and in rice diet. In feeding experiments phlorizin seemed to hasten the onset of the disease and increase the loss of weight. Adrenalin has no marked effect on the carbohydrate metabolism; pituitrin was found to be without effect. In feeding experiments only one animal out of six developed beri-beri, and all animals died early with great loss of weight. Thyroid gland produced a considerable sugar increase in the rice series. Hyperglycæmia occurs in pigeons on vitamine-free diet.—Experiments on the Internal Secretion of the Sexual Glands, Especially on Experimental Hermaphroditism, by Knud Sand. The author gives a short account of some experiments which form part of a large monograph published in Danish (1918). Steinach (1911–13) produced transformation of sexual characters in mammals by exchanging the sexual glands, and in 1916 he succeeded in producing a somatic and psychical hermaphrodite animal by subcutaneous ingrafting of both kinds of sexual gland at the same time and on the same infantile castrated male animal. The author's experiments on masculinisation and feminisation were made on rats and guinea-pigs mostly operated on within the first month of their lives. Experiments on transplantation of testes and ovaries are cited. In the ovary experiments the hormone-supplying tissues seem to be the follicles, the theca-lutein, and corpora lutea, and they are able under different circumstances to supply the place of one another in their influence on the female "accidental" (secondary) sexual characters. In experiments on rats on masculinisation hypertrophy of the clitoris was produced, besides the somatic reactions observed by Steinach. Castration of the experimental animal is a condition sine qua non for the ingrafting and efficiency of the heterological gonads, the transplanted organ perishing if castration is omitted. Simultaneous transplantation of a testis and an ovarium on the same castrated infantile animal (guinea-pig) resulted in somatic hermaphroditism combined with a decided bisexualism of the psycho-sexual character, in that the animal showed momentary changes from female to definite male character, according to the animals with whom it was brought into contact. Thus it seems possible to produce an artificial hermaphrodite through simultaneous transplantation of male and female sexual glands on an infantile animal. Experimental hermaphroditism was produced by an artificial ovario-testes method—i.e., by placing the ovaries in the middle of the testes and leaving the latter in their natural position. The ovary grows, matures, and functions well within the testes.—Note on the Permeability of Red Corpuscles for Glucoses and Glucosamine, by Shuzo Kozawa. In man the red corpuscles are easily permeable for blood sugar and in the dog slightly. In the hyperglycæmia of diabetes the volume of the red corpuscles is increased. The sugar content of the reds never exceeded that in the medium in which they were immersed. Human reds are permeable to glycosamine, but those of rabbit, dog, and horse are impermeable.—A Simple Definite Test for Ascertaining the Existence of Functional Cardiac Calcium, by W. Burridge. Hearts stopped in diastole following treatment with oxalates or citrates show a profound and definite change in their mode of reaction to a 5 per cent. potassium chloride solution, due to a loss of the normal functions of calcium. The changed reaction to the potassium solution has never been found in a beating heart, hence it is concluded that every beating heart must contain functioning calcium. It is only when we find this changed reaction that we are justified in assuming the absence of functional cardiac calcium.

Tubercle. A Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 4. January, 1920. London: Bale's Medical Books and Journals. 25*s.* per annum.—The January number begins with a paper by Dr. Otto May on Some Aspects of the Tuberculosis Problem in Life Assurance, in which the relation of family history of tuberculosis and other conditions to insurance are discussed. Among these conditions is exposure to mass-infection, and a very remarkable case is related on the authority of Dr. J. D. Cochran. A crew of seven, one of whom suffered from cough and spit, embarked on a Shetland fishing-boat and occupied the cabin, 14 ft. square by 6½ ft. high, for the season (May to September, 1909). The whole crew with a single exception died of consumption, and four of them, not including the infecting case, are known to have died within two years—i.e., by the spring of 1911. Nevertheless, Dr. May does not regard contact as necessarily increasing the risk in life assurance; the "contact case" is to be considered in respect of family and personal history, &c., and if these are favourable contact is ignored, otherwise a debt small or large is put on the policy. The paper includes charts showing the ratio of deaths from tuberculosis to total deaths at various ages. These exhibit the well-known heavy mortality in early life and its rapid fall in adult life, which is paralleled by the decreasing risk in assured persons with a previous history of tuberculosis.—Abstracts dealing with the results of artificial pneumothorax treatment form a special feature of this number. According to Sachs's analysis of 1108 American cases, negative results obtain in nearly half, palliative in nearly one-third, while apparently durable results occur in over one-fifth. Considering that the negative results include failures to establish the desired pneumothorax these figures must be regarded as very encouraging, and still better results may be obtained by more experienced selection and technique. In an account of 63 cases observed by Dr. Parfitt and Dr. Crombie of Gravenhurst, Ontario, prominence is given to mishaps, and valuable deductions are drawn therefrom as to prevention, diagnosis, and treatment. These authors, like Dr. Sachs, regard the method as the most effective available for progressive cases (particularly unilateral) in any stage, ordinary hygienic treatment having already failed.—A critical review on industrial phthisis further emphasises the work of Brownlee and points out that the separation of the factors in the causation of tuberculosis in factories is not merely an academic one. "Prevention of the inhalation of dust will be effective in regard to general respiratory diseases and to tuberculous silicosis, but will leave the greater amount of industrial tuberculosis untouched unless the means used to prevent dust inhalation happen to improve general ventilation."—Another critical review deals with State aid for sanatoriums, with special reference to the adaptation of army hutments.—The first of a new series of articles on the tuberculosis classics is devoted to Cornet's scrofulosis, and there follow reports of meetings of the Tuberculosis Society and other gatherings, together with notes on lectures delivered at Brompton Hospital and general news.

Ophthalmological Society of Egypt, Bulletin of 1919.—Lieutenant-Colonel H. L. Eason, in a paper on the Epidemic of Ophthalmia among Napoleon's Troops in Egypt in 1799–1801, and of Ophthalmia among British Troops and among Enemy Prisoners in the Egyptian Expeditionary Force, 1916–1918, retells the story of the epidemic of "Egyptian ophthalmia" of Napoleon's time, now generally recognised as having been not trachomatous but an acute purulent ophthalmia such as is seasonal every year in Egypt. The interest of the paper lies in the conclusions drawn from the experience of the recent campaign. Notwithstanding the almost universal prevalence of trachoma among the natives of Egypt, it appears that the infectivity of trachoma among soldiers of clean personal habits is almost negligible, and that ophthalmia of any sort is not a serious danger to an army with modern standards of sanitation. Several other papers are published, showing that the society is very much alive.

FRENCH SUPPLEMENT TO THE LANCET

Under the Editorial Direction of
Professor CHARLES ACHARD, PROFESSOR OF PATHOLOGY AND THERAPEUTICS IN THE UNIVERSITY OF PARIS,
AND
Dr. CHARLES FLANDIN, D.S.O., CHEF DE CLINIQUE A LA FACULTÉ DE PARIS.

SOME APPLIANCES FOR THE EXAMINATION OF THE NERVOUS AND MUSCULAR SYSTEMS.

BY DR. JEAN CAMUS,
PROFESSEUR AGRÉGÉ OF THE MEDICAL FACULTY IN PARIS; MÉDECIN DES HÔPITAUX.

THE manifold demands made by the war have forced doctors and physiologists to invent new methods or to adapt old ones to suit new wants. The Grand Palais, a huge centre for functional and professional re-education, which at some periods has been treating more than 3000 wounded men daily, has been the seat of certain physiological investigations which have led to practical applications. The main branches of these researches have concerned themselves with dynamo-ergography, vaso-motor reactions, tremor, and the selection of aviation candidates.

1. *Utilisation of Dynamo-ergography in the Study of Disablement.*

Since Marey, the graphic method is the classic way of studying the various muscular movements, and since Mosso, the results of ergography have been well established. It is able to furnish valuable information about work and muscular fatigue, and with many modifications it has been the origin of many publications.

It seemed to me to be interesting to make use of it to gauge the disability of wounded men treated by physiotherapy methods at our centres. These disabilities can certainly be ascertained by instruments for measuring, and I have already described some.[1] But the graphic method seemed also calculated to give most valuable information, as it allows us to measure and register the work done by wounded limbs before, during, and after a time of treatment.

At first I thought of connecting a registering attachment to the large number of mechanotherapy apparatus already in our possession, and by their means registering the work and the fatigue curve of the wounded. But I feared that the transport and adaptation of the registering attachment to various apparatus would meet with great practical difficulties, and I preferred to ask the Boulitte firm to set up two dynamo-ergographs,[2] one of which was to register most of the greater movements of the limbs and the other the movements of the hands and fingers. It was a matter of registering the main natural movements of the limbs, such as flexion, extension, &c., and not the more or less complicated occupational movements, so as to be able to estimate the functional, and not the working, value of a limb.

The general dynamo-ergograph which I have had set up consists quite simply of a lever, the movements of which are transmitted to a pulley to which weights are attached. On pulling the lever the movement of the limb raises the weights, whilst two counters add up the successive elevations of these known weights, so that the total work done is immediately known at the end of the experiment. At the same time the amplitude and number of contractions and the fatigue curve can be seen by means of the registering apparatus. The weights are adjusted to suit the muscular strength of the patient.

The arm of the lever being variable at will, this instrument allows us to ascertain not only the total effort but also its physiological quality by expressing the effort which depends on the arm of the lever and the distance traversed.

The registration of the curve of fatigue is accomplished by means of a manipulator barrel and a registration drum. The apparatus allows us to register the flexion and extension of both the superior limbs, together or separate, and in the same way those of the two inferior limbs and the two feet. The pressure of the hands is registered by means of a bulb firmly grasped in the fist and placed in connexion with a Marey barrel.

The special dynamo-ergograph for the hand and wrist is based on the same principles, and like the general dynamo-ergograph it has one counter which adds up the successive movements of the weights and another which counts the number of movements. This apparatus allows us to register the movements of the hand, wrist, and fingers in positions intermediary between complete pronation and complete supination. It also allows us to register abduction, adduction, and to take the pulse, and that on either side.

These two apparatus allow us (1) to establish the quality of the movements of the limbs, their strength, rapidity, and amplitude, the work done and the fatigue caused; (2) to follow the progress made during the treatment; (3) to detect malingering; (4) to evaluate functional disablement for work with a view to pensions and allowances.

The occurrence of malingering has often to be considered in the case of wounds as well as of industrial accidents. The diversity of the movements and their registration are bound to make malingering difficult. In the whole course of the exercises the malingerer must inevitably introduce discrepancies in force, amplitude, and duration, and these discrepancies become proofs against him. Moreover, with the help of a simple attachment it is easy to produce electric excitations in the course of the exercises, which allow of a further judgment as to the value of the muscular contractions.

Since Mosso it is well known what a distinctive appearance and individuality the ergographs possess and how hard it is for a man to simulate a fatigue curve when the registering apparatus is withdrawn from sight. But it is important to add that inconsistencies in the ergographs are not always a proof of simulation or of want of goodwill on the part of the patient. When there is pain at the beginning of the work, or when it appears as a result of the work, it disturbs the appearance of the ergographs. It is therefore necessary to investigate clinically under different conditions whether the sensitiveness of the wounded men who are tested has been affected.

The uses of the appliance which we have just briefly described are fairly numerous. In particular it can be seen how it can serve to study the comparative value of prosthetic appliances by examining the quantity and quality of the muscular work

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[1] Société de Biologie de Paris, May 29th, 1915; Archives de Médecine et de Pharmacie militaires, March, 1916.

[2] Société de Biologie de Paris, Oct. 9th and Dec. 18th, 1915, vol. lxxvii., pp. 520–742.

obtained by their aid. It can obviously also be used to estimate the results of surgical operations by registering the movements before operation and some weeks after it. Following out this idea, MM. Nepper and Vallée have studied three different cases in our laboratory, some record of which may be found in Dr. Valée's thesis.[3]

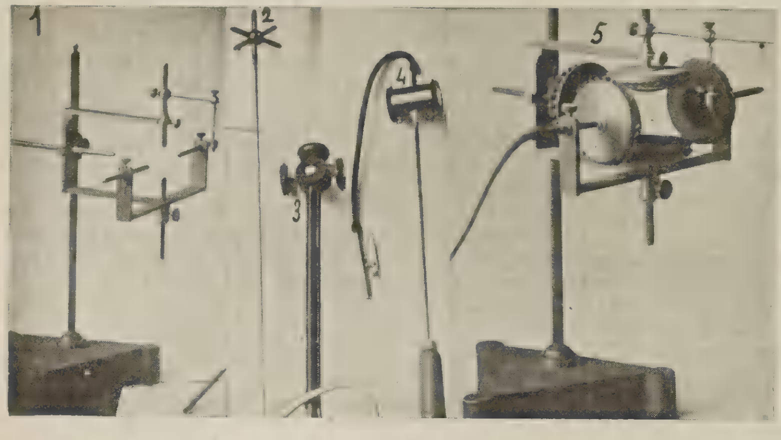

FIG. 1.—Various appliances for the study of tremor. *1*, Apparatus to be used with the drums *3* and *4*. *2*, Apparatus in which the hand or the rod *2* is introduced.

2. *Study of Vaso-motor Reactions.*

Wounds are a frequent cause of vaso-motor troubles, and, moreover, the variations in vaso-motor reaction deserve to be studied as evidences of the degree of an individual's susceptibility to emotion in various circumstances, in the case of patients where trephining has been resorted to, candidates for the flying service, &c.

To facilitate this study I have had a small apparatus made, consisting of an exploratory tube formed of an interior metallic framework, to which an indiarubber finger-stall is attached. This exploratory tube, which is otherwise hermetically sealed, communicates by means of an indiarubber tube with a very sensitive Marey drum. The sensitiveness of the exploratory tube may vary with the thickness and tension of the rubber used. This tube is applied to the palmar face of a finger, whilst a larger tube serves to register the pulsations in the plantar face of the great toe. It is also possible to get good records by means of a tube with two sensitive surfaces placed between the lateral faces of two fingers. The circumstance that by this last method the pulsations of the digital arteries are registered does not constitute a source of error, for these small arteries of muscular type are subject to the same influences which operate on the vaso-motors. The exploratory tube is held in place by two metal plates joined by four tension screws, which allow of its being pressed more or less closely against the surface of the fingers. This affords an easy and rapid method of regulation and produces good records.

The precautions usually taken when registering vaso-motor modifications must, of course, not be neglected. The subject must be at rest in a well-warmed room. It is also desirable to have the hands or feet, whichever are to be explored, in surroundings at a constant temperature. For this purpose I have used one of the electrically warmed pieces of textile fabric sold under the name of electric cataplasms.

With two apparatus of this kind it is possible to register the fingers of both hands at the same time. This device has provided me with diagrams of great amplitude showing very clearly variations caused by different influences originating at the periphery or at the centre. But like the other appliances it falls short of invariably giving satisfactory results, since numerous subjects produce graphs of very little use in spite of the very best appliances and preparations, either because they are under the influence of cold, or emotions, or for some other appreciable cause.

The registration of vaso-motor reactions in man always remains a delicate affair, in spite of the use of newly made thin rubber membranes and of the very sensitive Marey drums.[4]

3. *Study of Tremor.* (Figs. 1 and 2.)

A fairly large number of soldiers present symptoms of tremor, due to wounds of the nervous system, or concussion, or emotion, or other clearly determined cause. It was of interest to register and try to differentiate these tremors. For this purpose I used various devices. One of the simplest is formed of a very sensitive drum, which has at its centre a small metal plate to which a long metal rod is screwed. This rod is placed in or on the subject's hand, which may take up several positions successively, pronation, supination, or any intermediary position. The drum is connected with a registering drum.

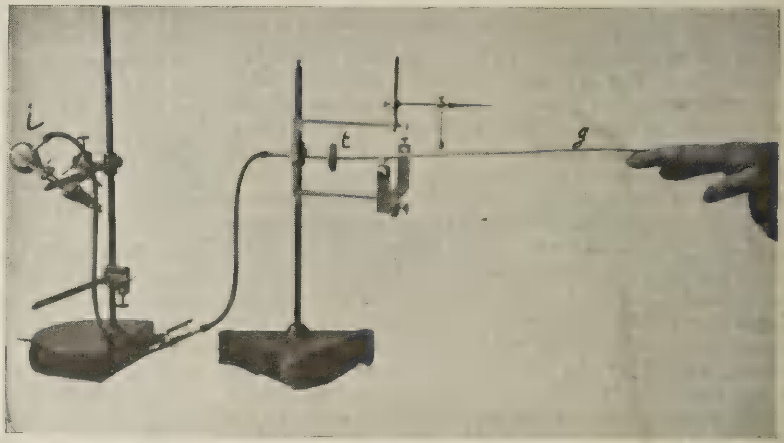

FIG. 2.—Simpler appliance for the study of tremor. *t*, Very sensitive drum bearing the rod *g* screwed on centrally, and transmitting the tremor of the hand. *i*, Registering drum.

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[3] Published by Baillière, Paris, 1916.

[4] Appareil pour l'inscription des modifications vaso-motrices chez l'homme, by Jean Camus, Société de biologie de Paris, June 3rd, 1916, vol. lxxix., p. 525.

Another device is formed of drums between which one can introduce the hand or an arrangement like the spokes of a wheel. This apparatus gives horizontal, vertical, and antero-posterior tremors, which can be registered separately or conjointly by uniting the drums in various combinations by means of tubes with several ramifications.

In a third device the five drums, instead of being fixed, are mobile and attached to a series of hollow rigid tubes, held like a bundle in the hand of the subject. Rubber tubes leading to the registering drums start from these hollow tubes. During the tremor the sensitive membranes of the five drums (two vertical, one superior and one inferior; two horizontal, one to right and one to left; one as far antero-posterior as possible) strike against small rigid rods fixed in proximity to them.

These devices insure the correct registration of the various forms of tremor, even the slightest, such as the normal tremor which exists in everyone.[5]

A very large number of good graphs taken with the first apparatus described above have been published in the important thesis by Dr. Binet, which comprises a detailed study of the various modalities of tremor.[6]

4. *Device for the Selection of Aviation Candidates.*

My laboratory established in the Grand Palais has allowed me to study the question of the selection of aviation candidates. In 1915 Dr. Marchoux, at that time chief medical officer of the Fortress of Paris, had asked me to investigate the aptitude of men wishing to become pilots by means of the physiological methods employed by me at the Grand Palais. The researches undertaken were pursued and brought to a very high pitch of perfection with the collaboration of Dr. Nepper, who unfortunately died in the course of the last influenza epidemic. We gave a first description of our method in the *Paris Médical*, March 18th, 1916. This method comprises two parts: 1. Measurement of psychomotor reactions with the aid of d'Arsonval's chronometer. 2. Registration, by the graphic method, of respiration, the cardiac rhythm, and the vaso-motor variations of the tremor considered as capable of revealing the emotivity of the subjects under investigation.

I was guided by the idea that it was useful not only to find out the rapidity of the psychomotor reactions (visual, auditory, tactile), but that it was also important to know the value and duration of the emotivity reactions called forth by a series of tests. Both parts seemed necessary, and I considered that they must be complementary to each other.[7]

As a matter of fact, a subject who has rapid psychomotor reactions may possess excessive emotivity, which he is unable to master, and is in consequence a bad aviator. Another may have very slow psychomotor reactions, too slow for him to be a good aviator.

Either alone or helped by several medical men (MM. Arrous, Binet, Turlais, Vallée, &c.), my collaborator carried out a huge number of examinations of aviation candidates. In his practice he soon gave up the registration of emotivity reactions, retaining only the measurement of psychomotor reactions, to which we had added, on the advice of our master, Ch. Richet, the idea of mean deviation. I cannot say whether this simplified method is enough, but for the reasons given above I do not think so, since to my mind the two parts of the device must be complementary.

From the facts which I was able to verify in collaboration with Dr. Nepper, and from those far more numerous ones verified by himself alone, it follows that in extreme cases the method described gives satisfactory results which are entirely in its favour. The very good aviators, the well-known "Aces," gave excellent psychomotor reactions and either feeble or completely controlled emotivity reactions. Inversely, persons who are ill or wounded in the head, and particularly cases where trephining has been carried out, who should theoretically be little adapted for flying, have provided bad psychomotor reactions and excessive and prolonged emotivity reactions.

The method described is doubtlessly susceptible of improvement, and may, perhaps, also be open to criticism—for example, it should be easy to add to our original method some more or less complicated tests of judgment, by provoking, or omitting to provoke, emotions during these tests. On the other hand, a critical study might be undertaken by using the method for the examination of a large number of pilots, who may be either very good, or good, or still mediocre pupils, at the beginning, in the middle, and at the end of their pupillary stage. Attention might equally be given to the degree of perfectibility of the subjects.

The war has given aviation a surprising impulse, but it is only at its beginning, and the future of aerial locomotion appears to every eye to be nearly without limits. It is very desirable that the recruiting of pilots should be treated with the utmost gravity and that comparative studies of selective methods should be undertaken in all countries.

THE LAWS OF TREMOR.

BY DR. LÉON BINET,

INTERNE DES HÔPITAUX, PARIS.

BY using a sensitive appliance, Marey's graphic method allows us to study and analyse tremor and to investigate the laws which govern this phenomenon. With this aim in view we have availed ourselves of the apparatus devised by our master, Jean Camus,[1] consisting of a very sensitive drum bearing at its centre a small plate, to which a metal rod is screwed. This metal rod is the exploring organ, which is applied to the region to be studied and attached to it by a string. This first drum (called the explorer) is connected with a second drum (called the receiver), the needle of which moves over the surface of a cylinder, where it also registers the time in seconds. Records thus obtained[2] show that it is necessary to distinguish physiological tremor from pathological tremor. It is the former that we wish to dwell upon now.

A. *Physiological Tremor.*

All normal subjects reveal a tremor which disappears only when the part of the limb under investigation is in a state of complete rest, totally relaxed, on a resisting plane. This tremor is general, and consists of nine oscillations per second in the case of the tongue, eight to nine in the upper limb, and five in the lower limb. These oscillations vary in amplitude, and the examina-

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[5] Présentation d'appareils pour l'étude du tremblement, by Jean Camus, Société de Biologie de Paris, Feb. 3rd, 1917, vol. lxxx., p. 164.

[6] Published by Vigot, Paris.

[7] Société de Biologie de Paris, vol. lxxxii., 1919, No. 19.

[1] Jean Camus: Présentation d'appareils pour l'étude du tremblement, C.R. de la Société de Biologie, Feb. 3rd, 1917, p. 164.

[2] Léon Binet: Recherches sur le tremblement, Paris, Vigot, 1918.

tion of the records allows us to distinguish two types: an unstable type (irregular oscillations) and a periodical type (recalling the periodic Cheyne-Stokes respiration). Physiological tremor presents variations the study of which permits of the description of the laws of tremor.

B. *The Laws of Tremor.*

1. *Tremor calls forth tremor.*—Let us take the record of the normal tremor of a subject by means of the registering appliance described above; then let us order him to tremble voluntarily. If the patient is finally instructed to stop his voluntary tremor, the record shows that it continues to imitate the intentional tremor and is entirely different from the original record.

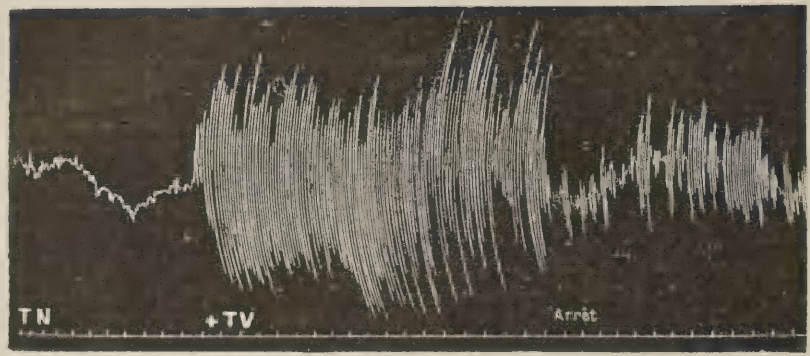

Fig. A.—Tremor, at first normal, then voluntary, and finally arrest of the voluntary tremor. (Tremor calls forth tremor.)

2. *Tremor increases as the result of muscular contraction and becomes exaggerated under the influence of work.*—Dynamic work increases tremor, first in that part of the body which has worked (*law of unilaterality*), then in the opposite member (*law of symmetry*), and finally becomes general (*law of generalisation*). Static work (maintaining a weight in a raised position) exaggerates the tremor, the increase of which is a function of the resistance of the member under observation, so that we have in it a proof (proof of tremor) which allows us to compare clinically the functional value of an unsound member by comparison with that of a sound member (investigation of cases of myopathy[3]), wounded limbs, encephalic wounds with peripheral motor disturbances.[4] Intense and prolonged mental work exaggerates the oscillations.

We see, then, that work in any form increases the tremor, and experience shows that tremor reacts on the work, for, owing to the fact that a subject trembles, voluntary contractions become less rapid and less frequent. We have there an interaction of evil processes which affects injuriously the proper output of the human motor.

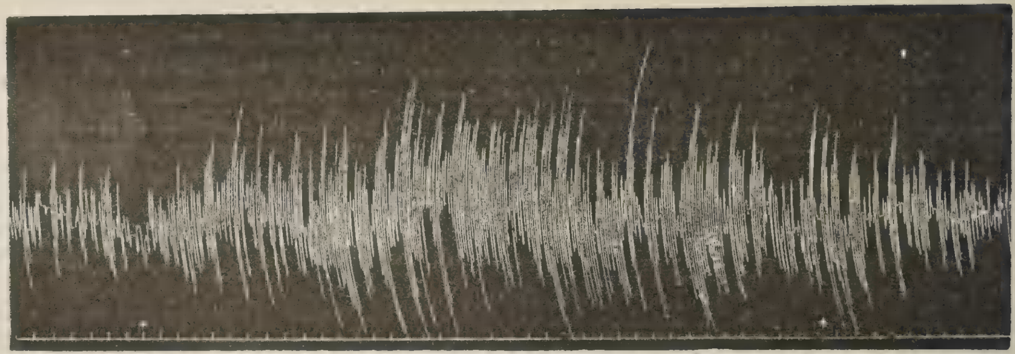

Fig. B.—Influence of mental work on tremor. (The subject under examination works mentally between the two crosses.)

3. *Tremor increases in consequence of emotion.*—Whilst the tremor record of a subject is being taken, fire a blank charge in a revolver and examine the tracing made. After the lapse of several seconds (from 4 to 20) an increase in the tremor will be noted. This increase is progressive, as if an intense tremor had been unmoored and was destined to be entirely let loose. The intensity of this tremor is a function of the "coefficient of emotivity," of the "threshold of emotional excitation," of the subject under examination.

4. *Tremor may be modified by respiration.*—Charles Richet's beautiful experiments[5] on dogs anæsthetised by chloroform, cooled to 34°C., demonstrate the existence of a shiver, which is at first limited entirely to inspiration and later on is continuous, but exaggerated at the time of inspiration. A similar fact may be observed—exceptionally, it is true—in the case of human beings. One patient under examination showed a clear exaggeration of tremor whenever he made a forced inspiration.

5. *Tremor is exaggerated under the influence of cold.*—It is a matter of common observation that we tremble when we are cold, and this thermic shiver in the dog has been studied at length by Charles Richet. The human being presents a similar thermic shiver caused by the impression of cold, having a cutaneous starting-point and a muscular end-point. The trembling may be general or partial, but it has an obvious predilection for the masticatory muscles, due to some peculiar sensitiveness of the mastication centre.

6. *Tremor is modified by peripheral impressions.*—Painful impressions received on the periphery increase tremor very noticeably. It is well known that in the case of animals Claude Bernard demonstrated a general tremor on galvanising the central end of a cerebro-spinal nerve. In human beings the painful exploration of a wound or the moving of an affected articulation sets up manifest tremor. On the other hand, certain actions carried out on the periphery have a diametrically opposite effect. Thus ocular compression brings about the arrest of a rigor (oculo-motor reflex[6]), and one can notice the rigor of infectious fever and the tremor of neuropaths lessen in a marked way under the influence of pressure on the eyes.

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[3] Ch. Achard and Léon Binet, Recherches biologiques dans un cas de myopathie progressive. Bull. et Mém. de la Sté. médicale des Hôpitaux de Paris, June 21st, 1918; Archives de Médecine expérimentale et d'Anatomie pathologique, 1919.

[4] Léon Binet: L'examen des blessés de la tête par des méthodes physiologiques, Revue interalliée pour l'étude des questions intéressant les mutilés de la guerre, No. 2, June, 1918.

[5] Charles Richet, article "Frisson" in Dictionnaire de Physiologie, vol. vi., p. 845, 1904.

[6] Ch. Achard and Léon Binet: Les effets de la compression oculaire, C.R. de la Soc. de Biol., Feb. 23rd, 1918, p. 158; Archives de Médecine expérimentale et d'Anatomie pathologique, June, 1918 (with records).

THE LANCET.

LONDON: SATURDAY, JANUARY 31, 1920.

The Voluntary Hospital System.

A STORY is told of a draper who, in the olden ys before the war, sold pins and bric-à-brac low cost price, but made a profit by selling great quantity. That is the position of the luntary hospital to-day; the number of its tients steadily increases, it loses a little on each them, and the treasurer has no luxury department to blind him, by its large profits, to the t that little losses indefinitely multiplied ke adverse balance-sheets and ultimately large erdrafts. The draper could rejoice in what ks like suicide, because, while bankruptcy was oided, the sale of luxury articles would save n. Between 1913 and 1918 the occupied beds 109 London hospitals increased from 9766 to 566, and the ordinary expenditure, after allow- for reimbursement on account of naval d military patients, rose from 1143 to 1611 ousands of pounds. In regard to provincial spitals, a casual dip into our news columns this ek will show that the Leeds Infirmary has an nual deficit, in round numbers, of £26,000, and bank overdraft of £39,000 which would have been ich greater but for a generous donor of £50,000. the Norfolk and Norwich Hospital the cost per patient has risen from £4 13*s*. in 1913 to £8 13*s*. 6*d*. 1918. It is a topsy-turvy sort of business, in ich the larger the turnover the greater is the s. And unless something is done, bankruptcy is t far distant.

At this point Sir ARTHUR STANLEY steps in with optimism which nothing can daunt, and which tainly found its justification in the experiences the Red Cross during the war. Given the proper chinery for collecting money and convincing idence that the money is put to a good use, he is re that the public will voluntarily find the oney. Not the same class as found it in 1910, then it was the bourgeois with enough and to are from moderate salaries, and they have now as ich as they can do to keep afloat at all. But less an 9 per cent. of the population, according to Sir NRY BURDETT, then contributed to hospitals at , and Sir ARTHUR STANLEY proposes to tap the rking-class population by voluntary levy of so ny pennies per week. Taking 300 hospitals of) beds each, that is 45,000 beds, at an annual cost £150 a bed, it is not difficult to see that the million pounds required each year, of which not ore than a third is covered by endowment, would amply raised from a population of 40 millions. ch of whom contributed 1*d*. a week. And in the wcastle area a suggestion to the miners that their present contribution of 1*d*. a week should be doubled has met with a ready response. The Red Cross, as will be seen on p. 278, has put its unrivalled collecting machinery, which has never broken down although now arrested for overhauling, at the disposal of the voluntary hospitals, and has offered the whole-time services of Sir NAPIER BURNETT, of auxiliary hospital fame, to set the machine going. He may be able to reassure the private donor. Certain spinning towns, which scarcely make a secret of their opulence, would finance their own voluntary hospitals generously but for uncertainty as to State control. How these would-be givers can misinterpret Dr. ADDISON'S repeated assurance it is difficult to understand; the Ministry of Health has more sense than to interfere with institutions efficiently financed and run. It is believed that it will refuse to allow municipal bodies to borrow money for hospitals in places where private enterprise is active and enlightened.

One condition, and one only, is attached by the Red Cross to its offer of help, and it is a condition which the British Hospitals' Association is as keen to ensure as the Red Cross is to impose. Efficiency and economy must be the watchword of hospital administration. There is no complaint—there never has been—of the devotion of the voluntary officers, medical and otherwise, attached to the particular hospitals, but there has been a lamentable lack of coöperation between hospital and hospital, and nowhere a proper county scheme. Sir NAPIER BURNETT, who recently undertook a general hospital survey in the north-eastern area, which covers 2 million acres and 2½ million people, found a hospital (general and special) bed-rate of ¾ per 1000 of population, with some 3000 names on the waiting list. The area provides precisely the same number of beds for infectious diseases as for all other diseases and accidents. There are double the number of beds in Poor-law infirmaries, of which only about one-half are occupied. A scheme is afoot for collecting £100,000 for a war memorial hospital to be erected a stone's-throw from a spot where lie empty 200 infirmary beds, which could readily be separated from the workhouse. Verily, all is not well with coördination. Sir NAPIER BURNETT has wise things to say concerning remedies, especially in the direction of a great development of the convalescent hospital, in which the annual bed-cost should be less than one-half of that in the general hospital. We may hope much from a hospital survey of the whole country carried out with sympathy and imagination. Mr. BASIL MAYHEW'S plea for a strong committee to be set up in each county, to adopt a definite hospital scheme under the guidance of a single central coördinating body, has much to commend it. In the meantime, with the help of the Red Cross the voluntary hospital system may be able to carry on through the lean years of reconstruction. We hope it will. But it will require a strong pull with all the forces balanced by intelligent administration.

The Increase of Criminal Abortion.

IT is to be hoped that the sentences passed by Mr. Justice DARLING upon three criminals at the Central Criminal Court, and the terms in which he addressed the prisoners, will have been closely studied by all persons engaged in the trade of the abortionist, and also by the police authorities, who should be encouraged in every effort to stamp out that trade. A man named GARDNER pleaded guilty to using an instrument to procure the miscarriage of a woman named SMEDLEY, and two other men—EASSON and TITMAN—pleaded guilty to aiding and abetting him. In another case GARDNER and EASSON were found guilty of the manslaughter of a woman, GARDNER by performing an illegal operation, and EASSON by aiding and abetting him. The men were sentenced, GARDNER to ten years' penal servitude, being described by his lordship as a "professional abortionist," EASSON to penal servitude for two concurrent periods of five years, and TITMAN to 18 months' imprisonment with hard labour.

Mr. Justice DARLING, dealing with the general aspects of the serious crime of abortion, in passing sentence, said: "There are those who write about what they call 'race-suicide.' The term does not matter. But a country which permits its population to be dealt with in this way is bound to decay. Those who have as many enemies as the British Empire must for their own safety have plenty of children to meet those enemies in the gate. We have many gates to defend; therefore it is that the law for that and other reasons makes these practices penal and awards a heavy punishment for them." In sentencing GARDNER his lordship told him that he was fortunate in not having been convicted of murder. He thought it high time that a man who had killed a woman, as GARDNER had done, and had practised abortion over and over again, should be convicted of murder and hanged, adding that if he had been so convicted not a word would have been said by the court to save him from the gallows. His lordship dwelt further upon the proof, supplied by the case, of the increase of the practice of abortion during the circumstances produced by the war, the public conscience being dead with regard to it. He referred to evidence given by the prisoner TITMAN, a former clerk in the Army Pay Office at Winchester, that pregnancy and how to procure abortion were common topics of conversation among the young men and women working there. Of EASSON (described as a masseur) Mr. Justice DARLING said that he was employed in a shop in Villiers-street, stated to belong to a man named NATHAN, who seldom went there himself. The business carried on was mainly in "regulators," medicines, pills, and appliances the object of which was obvious. Of the pills his lordship said that it was believed by those who bought them that they were capable of procuring miscarriage. They were sold at 10s. a box, and if they failed in their purpose were labelled "double strength," and sold at £1 a box. Of TITMAN his lordship said that in spite of his youth he was thoroughly debauched and immoral. Certainly in three or four cases he had been the means of introducing young women to the nefarious practices carried on, and EASSON had said that some of them came to the shop in their various uniforms.

If the trial, which Mr. Justice DARLING has thus brought to an issue beneficial to the public, is to bear any fruit, its result should be the closing o other places of business of the kind described They are perhaps not so conspicuous as they were a few years ago, but the police must be aware of many of them. The trade in alleged abortifacients cannot be carried on without certain amount of advertisement, if it is to be on a profitable scale, and the window of the shop where "regulators" are sold i generally filled with articles and papers clearly indicating the class of customer for which it caters But though anyone can see what is going on prosecutions may be hard to start. Women wh desire to avoid the burden of maternity are no often willing to be witnesses to criminal practice in which they have been participators, and even those most antagonistic to the employment of th *agent provocateur* may regard her or him a indispensable in the circumstances. The greed o the trader of this class upon public credulity wil almost certainly cause him to supply, on mer application, documentary evidence such as wil admit no denial of his guilt. Death from procurin abortion probably does not occur so frequently a formerly in proportion to the number of illega operations conducted, for the importance of asepti conditions and the means of obtaining them ar more widely known than they were; but thi increases the necessity of detecting the abortionist, even though he has to be, as some person would say, entrapped.

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The Last Report (Medical Supplement) of the Local Government Board.

THE Annual Report of the Local Governmen Board for 1918–19 is accompanied by the supplementary report of the Medical Department of th late Board for the period. The document is submitted by Sir GEORGE NEWMAN, the Chief Medica Officer of the Ministry of Health, who was appointe in 1919 as Principal Medical Officer of the Board i succession to Sir ARTHUR NEWSHOLME; the medica supplement is the last of a famous series whic began 64 years ago under the Joint Board of Healt which had been instituted in 1848. The series wa continued under the Medical Department of th Privy Council, and, finally, from 1871 until this las document, was issued by the Local Governmen Board. In a letter to Dr. CHRISTOPHER ADDISO he first Minister of Health, Sir GEORGE NEWMAN ntroduces the Report by recalling the work of his predecessors in office, calling special attention to he broad principles of State medicine initiated by Sir JOHN SIMON, Medical Officer to the Privy Council from 1855 to 1876, and alike the father of scientific preventive medicine in this country and the pioneer of similar activities throughout the civilised world. Recognising that the publication of this Report closes an epoch, Sir GEORGE NEWMAN calls attention to the fact that the Local Government Board from 1871 to 1919 gave to the nation, not only in this series, but in the actual work behind the reports, a method consisting of "a combination of scientific work and common-sense administration both associated with a wide and comprehensive vision." That is a perfectly just claim, and leaves no need for addition.

The Report itself, which has been prepared by Dr. G. S. BUCHANAN and Dr. R. J. REECE, respectively First and Second Medical Officers to the late Local Government Board, follows generally the lines of the reports emanating from previous heads of the department; but in view of the termination of the Local Government Board as a Department of State, upon the creation of the Ministry of Health, no such complete survey has been given, as in some of the earlier documents was thought necessary. The present Report is mainly concerned with notes and records regarding certain infectious diseases, and with a chronicle of the work done during the last stages of the war for the prevention of tuberculosis, the control of venereal disease, the administration of port sanitation, the inspection of food, and, especially, the care of children and nursing mothers. These are all matters in which it is important to maintain continuity of record, and the information compiled under the various headings is valuable in its authoritative and concentrated form. The history of the great epidemic of influenza, contributed by Dr. T. CARNWATH, and representing the views of the epidemiologists of the bureau, is a thoroughly useful contribution. The difficulty of preventing the spread of a highly infectious and rapidly developing disorder is indicated by the circumstances detailed. The disease first attracted the attention of local authorities in England in June, 1918, but this appears to have been later than the date at which cases occurred in Spain, in Japan, in the United States, and in certain of our own naval and military bases; so it was surmised that in many places the first English cases occurred in association with soldiers or sailors convalescing or home on leave. By the middle of July what had now become an English pandemic was at the top of its severity, and Dr. CARNWATH illustrates the incidence and its results by curves which display the behaviour of influenza in different centres of population. These curves show well the autumn fall and the second epidemic at the end of the year 1918, the crest of this second wave being reached on Nov. 9th, when over 7000 deaths from influenza were registered in "the 96 great towns." The contradictory features of the disease, as it manifested itself in various and separated localities and in age and sex groups, bring Dr. CARNWATH to the hypothesis that there are several strains of influenza virus and that these vary in virulence and antigenic potency; but the hypothesis is only put forward as one that most nearly reconciles conflicting evidence, and the essential message emerges that influenza is a crying subject for organised medical research.

Dr. BUCHANAN is responsible for the section on epidemic diseases in this country associated especially with war conditions—namely, malaria, dysentery, and such louse-borne diseases as typhus and trench fever. A great deal of the general information under all three headings has been published in THE LANCET in the form of reviews of reports issued by the Local Government Board for the information of the public, and the section shows how alert the authorities were to prevent conditions which were inseparable from those of war spreading from our sailors and soldiers to the civilian population. With regard to louse-borne diseases, so good a system of cleansing was carried out that infestation by vermin has been of the rarest occurrence in the homes of the returning army—among sailors, of course, no such risk existed. There has been no material increase in prevalence of lousiness among our general population. The possibility of bacillary dysentery must still be kept in mind; while the occurrence of any sudden severe gastro-enteric attack should be noted, the amount of danger attaching to amœbic infection in this country still needs determination. The question of the spread of malaria remains under close observation, and practitioners should remember that at the Ministry of Health all help will be given. If doubt arises as to any case or group of cases, it is important that the specialised assistance of the department should be sought.

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The Limit of Standardisation.

A RECENT issue of the *Journal of the American Medical Association* contains a plea for the standardisation of laboratory tests. It is pointed out how easily confusion may arise in the interpretation of the results obtained with complicated biological and biochemical reactions, especially when numerous modifications of any one test are used in daily practice. Figures presented by different observers, and presumably purporting to represent the same thing, may not be comparable unless the same methods have been used or, if the methods vary, unless an exact comparison has previously been made. This applies, perhaps, with more force to the Wassermann reaction than to any other laboratory diagnostic method, though the same may be said of most of the difficult modern tests. The hard position has long been recognised, and attempts have been made to obtain agreement as to what shall constitute standard conditions. In this respect we are perhaps somewhat ahead of our American colleagues. Professor DREYER'S attempt to put the agglutination reaction on a quantitative basis is an example of the kind of work which, we take it, the American journal would like to see done. Perhaps the admirable series of reports now being issued by the Medical Research Committee on the "Standardisation of Pathological Methods" will lead to an improvement in the general reliability of laboratory work. The reports already issued by the Committee include one on the method of standardising bacteriological media—a matter obviously of first-rate importance—one on the laboratory diagnosis of gonococcal infections and the detection of spirochætes, and two on the Wassermann reaction and its diagnostic value. They are written by experts in each subject and contain the detailed information which even the largest text-books omit for want of space. Incidentally, chemical manufacturers have an unrivalled opportunity of supplementing such work—and of reaping large profits—by supplying chemicals of guaranteed purity.

All this work is to the good, but it should not be forgotten how near it approaches to dangerous ground. Beyond certain limits we trench upon a question of fundamental importance in science, that of the foundation of authority. We may unify the simpler methods, which are based on precise knowledge, and no harm follows. Indeed, the general tendency is towards simplification as our knowledge of principles grows. But attempts to bring about complete uniformity in the technique of biological reactions, which are yet only partially understood, would hinder rather than help progress. Standardisation must have behind it work which has been often verified and is generally accepted; and original work must not be limited by any suggested rule. It is still beyond the wit of man, or of committees, to devise any scheme which shall absolve us from the necessity for critical reading and study. So in the end each man must make his own choice out of the multiplicity of methods open to him.

THE Mary Putnam Jacobi Fellowship of $800 (about £200) is offered by the Women's Medical Association of New York City for post-graduate study in any country to any woman physician for work in any medical science. For full particulars apply Dr. C. M. Murrell, 86, Porchester-terrace, London, W. 2.

UNIVERSITY OF CARDIFF.—Sir Edward Sharpey Schafer visited Cardiff recently and delivered an interesting address in the large lecture theatre of the new physiological department. He discussed, very appropriately, the construction of laboratories and hospitals of medical schools, and pointed out the inexpediency and folly of placing such buildings in great cities on confined and expensive sites with no room to expand, except at prohibitive cost. He advocated and illustrated the American method of obtaining, while land is reasonably cheap, a campus far beyond all immediate requirements. He pointed out that local authorities are longer lived than the men who at any time constitute them, and that they must plan ahead for 200 years or so, otherwise their reputations will suffer at the hands of future generations, who will have to shoulder their mistakes, instead of inheriting the fruits of their foresight. The address was listened to with interest by a receptive and representative audience.

Annotations.

"Ne quid nimis."

PREPARATIONS FOR AN INFLUENZA EPIDEMIC.

THE Ministry of Health has issued an intimation to the public of the possible recrudescence of influenza in this country, resuming a Memorandum issued in December last to Local Authorities. The facts reaching the Ministry from sporadic sources in England and Wales, as well as the prevalence of the disease in Japan and India in the east, and in the United States in the west—to say nothing of reports from Central Europe—make it probable that an epidemic may again develop in this country. Readers of THE LANCET will recall that early in November last Dr. John Brownlee, the Director of Statistics at the Medical Research Committee, suggested that an epidemic could be anticipated, by a right reading of the figures, somewhere about the end of January. The prediction was made tentatively, the capricious behaviour of epidemics being noted, and Dr. Brownlee tied himself down to dates in no close manner; but he gave a warning which should not have been neglected, especially in view of the Memorandum of the Ministry of Health.

The advice now given by the Ministry to the public, to the Local Authorities, and to those who will have charge of the sick will be found summarised below. It is in essentials an insistence upon counsel that has been previously issued; therefore we may trust that the warning is being addressed to enlightened hearers, who may have already considered in advance the procedure which should be adopted if the day of trial arrived. Under the heading of prophylaxis nothing very definite is said by the Ministry upon the value of inoculation, nor can medical science expect a pronouncement. We are dealing with a disease whose actual causal agent, or combination of agencies, is unknown, though considerable evidence exists, emerging from the 1918 epidemic, that inoculation has done good work in certain groups of cases. It is obvious that in this direction wide as well as concentrated research should be undertaken. The problem is a difficult one, and to stop out many of the sources of error which are present will require great industry and logical powers. Now is the time for their application, with past facts recorded recently and new ones arriving.

Although the latest official returns do not indicate any ominous or sudden increase of deaths attributable to either influenza or pneumonia of an infectious type, the Ministry of Health, drawing special and public attention to its recent Memorandum, reminds us of the infectious nature of incipient influenza. The following advice, not for the first time, is given to the public, the patients, and those who have charge of them:—

Prophylaxis.

Infection may be guarded against by:—

Healthy and regular habits and avoidance of fatigue, chill, alcoholic excess, crowded meetings, hot rooms, and unnecessary travelling. There should be good ventilation in working and sleeping rooms, and warm clothing should be worn. Gargling is recommended from a tumbler of warm water, to which has been added enough permanganate of potash to give the liquid a pink colour. A vaccine against influenza has been prepared by the Ministry of Health and is available for general use, following the War Office procedure.

It is issued to medical officers of health for distribution free of charge among doctors, and any person who wishes to be vaccinated should apply to his own practitioner. To obtain its value the vaccine should be used *before* the epidemic occurs. The procedure is not necessarily protective, but it may lessen the risk of the dangerous ensuing complications.

Advice to Patients and Nurses.

In the event of an attack of influenza the patient is advised to adopt the following measures to secure rapid recovery without complications :—

At the first feeling of illness, or immediately on a rise of temperature, the patient should leave his work, go home, and go to bed ; he should keep warm and should send for the doctor.

On convalescence the patient should avoid meeting-places and places of entertainment for at least one week after his temperature has become normal. Recovery should be fully established before return to work.

Persons nursing influenza patients are instructed that the sick should occupy a screened-off bed or a separate room until the temperature is normal. Though warmth should be secured, ventilation should be free. Inhalation of the patient's breath or contamination from sneezing or coughing should be avoided, and the hands washed after contact.

Advice to Local Authorities.

Local Authorities are urged to consider *in advance of an epidemic* the advice issued in the Memorandum, stress being laid upon the following :—

The immediate appointment of an emergency committee.

Scheme for coöperation with medical practitioners and voluntary health workers.

Provision of nursing.

Subdividing the district for anti-influenza work.

Provision of home helps.

The utilisation of the local authority's staff.

Emergency hospital provision.

The prevention or mitigation of overcrowding, especially in public vehicles.

Workers who are obviously ill should be sent or taken home at once.

The vaccine, prepared by the Royal Army Medical College and supplied by the Government Lymph Establishment (Colindale-avenue, The Hyde, London, N.W. 9), is issued gratuitously to medical officers of health and through them to medical practitioners who desire to use it. They are requested to keep careful notes in respect of each person inoculated, of the name, address, sanitary district, age, sex, dates of previous attacks of influenza, date of present inoculation, and subsequent history, so that trustworthy figures may be obtained as to the results of inoculation.

Action in Advance.

The Ministry of Health announced on Thursday morning that during the months in which the country has been free from epidemic influenza the investigations into the circumstances and conditions which lead to a spread of the disease have been conducted, so that, should another epidemic occur within the next few weeks, it will find the country better equipped in respect both of theory and practice to meet the attack. They state :—

The Ministry keep a constant watch on the occurrence of influenza at home and abroad and have put themselves in a position to observe closely the progress of any epidemic wherever it may occur. Information is derived from returns as to epidemics obtained from Consular Agents and from other official sources all over the world. As regards the prevalence of the disease at home, information comes from the weekly returns of influenza mortality in the 96 great towns issued by the Registrar-General, and from returns of cases of acute influenzal-pneumonia, the notification of which is now obligatory on all medical practitioners in England and Wales. Returns of cases of influenza are also furnished voluntarily every week by a number of schools, institutions, and representative industrial firms throughout the country. All data on the subject, statistical as well as scientific, come before an Influenza Committee, which is a Medical Standing Committee of the Ministry of Health, holding frequent meetings, and on which sit representatives of the various Medical Departments in Whitehall.

A vaccine against influenza has been prepared by the Ministry and is now being issued on demand to medical officers of health for distribution, free of charge, among medical practitioners within their districts. It is not guaranteed that this vaccine will in all cases necessarily protect from attack, but the experience of the military authorities, and of the eminent bacteriologists consulted by the Ministry, justifies the belief that the use of this vaccine will, in many cases, actually protect from attack, and should such attack occur the person who has been vaccinated beforehand will be less exposed to the risk of complications. It should be added that steps have been taken to protect the country as far as may be from the introduction of influenza through the ports.

The further activity of the Ministry may be conveniently grouped under the headings of education and research. The knowledge and experience accumulated during recent epidemics have been collected and issued to local authorities at various times in the last 12 months. Within the last few days a leaflet has been issued for popular use (see above), and setting out the best measures of guarding against infection, together with advice to patients as to the best known means of securing a speedy return of convalescence and the avoidance of those complications which constitute the special danger of influenza.

Meanwhile, much active research continues by the medical officers of the Ministry into the causes of epidemics of influenza. Special inquiry is being made in selected districts into such questions as immunity, the effects of overcrowding, incidence according to age, and so on. The medical officers who are conducting these investigations are in close touch with the work which is being carried on by other investigators, and are making their inquiries in collaboration with the Medical Research Committee.

THE STRUGGLE FOR EXISTENCE AMONG LOCAL AUTHORITIES.

DURING the past few weeks portions of the country have become the scene of an interesting and significant struggle between local authorities, some seeking to expand, and others to maintain, their civic boundaries. The storm-centre has been in Yorkshire, where some half-dozen of the larger cities and boroughs are severally seeking powers from Parliament to engulf adjoining districts—already in some instances flourishing communities—and by the same act to deprive the County Council of the West Riding of an important portion of its administrative area. While this form of warfare is by no means a new phenomenon, the period of comparative quietude produced by concentration on a greater war, followed as it now is by this sudden fury of desire for a more conspicuous place in the sun, has brought into unexpected relief the issues underlying the movement. Let it be granted that the contest brings to light a number of unedifying traits ; that its aspect of self-aggrandisement, or so-called civic pride, leaps to the eye ; that it is selfish in its lack of consideration for the needs and desires of the smaller authorities involved, and materialistic in its motto: "Let us swallow, lest another swallow first." Nevertheless, beneath all this there appears to be the motive of grappling with a most vital question in English local administration—the definition of the areas most suited to the various functions of local government. This can be appreciated by anyone who attempts to analyse for himself the public health aspects of the position. How would an unprejudiced medical officer of health propose to give evidence as to whether or not, from the standpoint of the public health, a particular city should extend its boundaries and thereby absorb perhaps an urban, perhaps a rural, district previously governed by its own electorate and administered, aided, or supervised as to some of its public health activities —e.g., education, midwifery, treatment of tuberculosis and of venereal disease, maternity and child welfare, &c.—by the county council? The decision becomes an embarrassing one, and is still more so when considered in general terms without reference to particular areas. Take two of the main communal functions—the provision of water and the disposal of sewage. Certainly the absorption of the smaller into the larger district is, on the whole, likely to lead to a larger and better water-supply for both. But is this necessarily the true ideal, or would it not rather be better that the duty of supplying water both to the city and to the district should be delegated to a still larger authority— perhaps a county council or a group of county councils, with control of an entire watershed, and with power to distribute the supply not only to industrial centres but also to the more remote rural districts? In respect of sewage disposal, again, the larger the scheme the more likely it is to be efficient, and the collection, treatment, and disposal of sewage is likely to be better done by a large city than by a small district. But what of the large towns in which the pail-closet and the midden are still to be found? Should these be encouraged to further civic ventures before they have met their existing responsibilities in this respect? Again, what type of local authority best retains that personal touch and interest on the part of the administrative officer so essential to the efficiency of work such as that of maternity and child welfare, and of the control of tuberculosis and venereal disease? Is it the county, the large city, or the borough with a population of 50,000 to 100,000?

These are but a few of the problems which spring at once out of cursory inspection of the position. A searching official investigation into the whole matter is needed, to include a scrutiny of the relative capacity of the various types of existing authorities, and of such new authorities as may be suggested in substitution. We commend the matter to the Minister of Health for serious consideration. It is true that the department has a vast mass of work to do, but in the course of that work it is acquiring cognate information.

MENTAL TESTS.

AT a recent meeting of the Educational Section of the British Psychological Society Dr. P. B. Ballard gave an interesting account of the development of measurement as applied to the data of psychology. He showed how the first attempts had passed from the physical through the psychophysical to the purely psychological side in modern times. The value of properly standardised mental tests of intelligence and of ability in school subjects is fast becoming recognised. Indeed, there is a tendency to exaggerate their value and to suppose that mental defects can be diagnosed merely from the data afforded by such tests. They are valuable enough instruments in the hands of the expert, but untrustworthy servants when used by the ignorant and untrained. Of equal promise are the special tests now being devised to ascertain the relative fitness of different individuals for different occupations in life. No one is so suited to take up the application of these various tests as the medical man trained in modern psychology. The opportunities for their use are daily increasing. As Professor John Adams observed in his recent address to the Association of University Women Teachers, certain pioneer employers in this country are already using mental tests in order to select those best fitted for particular types of work. The Industrial Fatigue Research Board and the proposed National Institute of Psychology and Physiology Applied to Industry and Commerce will also doubtless be in need of suitable investigators in relation to vocational selection and guidance.

TWENTY-FOUR YEARS OF RADIOLOGY.

1. The first radiograph from human hand, made in London, Jan. 13th, 1896 (20 minutes' exposure).

2. Human hand taken December, 1919 (1/100 second exposure).

These are the first two exhibits at the Royal Photographic Society's Exhibition of X ray prints. They give the key to the immense progress which has occurred in the 24 years since Professor Röntgen's far-reaching discovery was flashed throughout the length and width of an astonished world. In "No. 1" the distal phalanges are barely visible; there is no sign of the metacarpal bones in spite of the 20 minutes' exposure. "No. 2" shows a great wealth of detail of bone structure, and a good deal of differentiation of the soft parts—all achieved with a "flash" exposure. The crude instrument of 1895 has been replaced, step by step, by apparatus of ever-increasing power and efficiency. This improvement in the technique of radiography is still going on; the recent invention of the Coolidge tube is a notable instance; none can say when or where it will end. Side by side with the technical advance has gone a corresponding increase in the range of application of the X rays to purposes of diagnosis and treatment, while two dozen years of experience, the world over, have established the interpretation of the X ray pictures, and given confidence to the radiologists in arriving at their diagnoses.

Perhaps the most predominant impression gained by a visit to the exhibition is the great extension of the uses of the X rays for industrial purposes. There are radiograms of golf balls, of shells and fuses, of metallic rods, tubes, and plates, showing faults, defective welding, and so forth. The radiographs of patients show a very wide range of subjects: metallic foreign bodies, fractures—war injuries figuring largely in both categories. Calculi, including gall-stones, rendered opaque by a crust of lime-salts deposited upon the surface of the cholesterin in the course of years. Many diseases of the lungs and other thoracic organs; diseases of bones and joints; and lastly, a large series of prints showing the progress of an opaque meal through the different parts of the alimentary tract. This last is the province in which the X ray investigation has yielded the most far-reaching results in iding diagnosis. Gastric and duodenal ulcers, ancers of the digestive organs, appendix troubles nd many other abdominal disorders yield their ecrets to the radiological test when all other tests ay have failed to lead to a definite conclusion. he whole study of chronic intestinal stasis epends for the details of diagnosis on the X ray vestigation. This study is fraught with the most r-reaching results to medical science, for it has d to a revision of our views on the ætiology of any of the diseases of the digestive system. Hitherto e have been content to regard "gastric ulcer," duodenal ulcer," "gall-stones," "appendicitis," colitis," &c., as isolated diseases. The teaching of ir Arbuthnot Lane, powerfully supported by the diological investigation, has shown that they are, fact, all parts of one and the same disorder. The ecent important discussion on "diverticulitis" at e Royal Society of Medicine, reported at some ngth in recent issues of THE LANCET, afforded one ore striking instance of the value of radiology in iagnosis. It is interesting to be able to record that ir Arbuthnot Lane[1] published an accurate account f this condition and a true explanation of its athology as long ago as 1886, or fully 11 years efore the earliest description usually recognised.

What are the prospects of radiology during the ext two dozen years? If we look back on the first wo dozen we see that progress, both in apparatus nd in application, has gone on step by step in a niformly progressive manner; so we may assume hat future progress will be steadily maintained, hough we should, perhaps, hardly expect progress be at the same rate now the science of radiology approaching maturity, as during the first years f growth from infancy.

LOCAL EFFECT OF QUININE INJECTION.

QUININE differs from most alkaloids in that it as little or no specific action on any particular ariety of tissue but affects all forms of protoplasm, ausing in small quantities increased activity, in rger doses depression and death. It is this roperty which makes it of such value in the treatment of malaria, for when present in the circulating lood it acts as a direct poison to the delicate rotozoa, especially in their extra-cellular stage. he importance therefore of ensuring a sufficient oncentration of the drug in the circulating blood ecomes obvious, but administration by the mouth oes not always achieve this end, and may, for various easons, be contra-indicated. Of other methods, those ost usually employed are intra-muscular or subcutaneous injections, but neither are altogether ree from objections. The risk of accidental infection may be reduced to a minimum by careful sepsis, but painful swellings tend to form at the ite of inoculation, and necrosis and abscess formation, thrombosis of vessels, nerve palsies, and other omplications have been reported. Reference to our orrespondence columns during the last few months will show that there is no unanimity of opinion as o the best method of administering quinine. Some ractitioners are satisfied with the oral method; thers condemn subcutaneous injections and ecommend intramuscular ones; others, again, ely almost entirely on the subcutaneous method. olonel L. S. Dudgeon, in a recent number of the *ournal of Hygiene*, has investigated experimentally he effect of intramuscular injections of quinine, and has arrived at interesting conclusions. He finds that both concentrated and dilute solutions of quinine produce œdema and muscle necrosis, and though the lesions are more severe with strong solutions they invariably occur unless the drug is in such a weak concentration as to be medicinally useless. In addition to necrosis of muscle there may be destruction of blood-vessels and complete degeneration of nerve trunks. Similar results, however, were obtained by injecting the solvents usually employed without the addition of quinine, and since the author was unable to eliminate their action, the alkaloid cannot be held entirely responsible. In combination with urea, quinine was used at one time to produce infiltration anæsthesia in surgical operations, but troublesome œdema and delayed healing of wounds were such frequent accompaniments that this method of lessening shock has practically been abandoned. Similarly, though it is beyond doubt that absorption is extremely rapid after intramuscular injections of quinine, the severe complications which may attend this practice would seem to contra-indicate it save under exceptional conditions.

THE AFTER-EFFECTS OF GAS POISONING.

THOUGH the earlier effects of gas poisoning have been fully studied, little attention has been paid to the later. Captain S. O. Cowen[1] has described recently the conditions found in 150 Australian soldiers on disembarkation who presented themselves for treatment at the 5th Australian General Hospital since April last. The series included only those considered by the medical boards suitable for treatment as out-patients. Many were gassed at Ypres in the latter part of 1917, and many in the fighting between April and November, 1918. In general they showed the less severe after-effects. There were not sufficient data to make a comparison between the effects of the different gases used, but mustard-gas seemed particularly potent in causing lung lesions. The symptoms were cough, profuse expectoration, dyspnœa on slight effort, sometimes associated with palpitation and præcordial pain, pain in the back, and loss of weight. Physical signs of lung disease were present in 80 per cent. of the cases. In all of these, changes in the percussion note were demonstrable. In the less severe cases there was a small triangular area of impaired resonance in the right interscapular area. In more severe cases this area extended laterally and downwards until it involved the upper portion of the lowest lobe of the right lung. In the most severe cases the dullness in the right interscapular area changed from relative to absolute, and extended slightly across the middle line. In addition there were, in cases of moderate severity, impairment of percussion note at the right apex, and, in the most severe, at the left also. The vocal fremitus was usually increased over the areas of impaired resonance. Auscultation showed over these areas a type of vesicular murmur difficult to classify—broncho-vesicular most nearly described it. There was prolongation of expiration, and the sound was rather hollow and slightly raised in pitch, as though the vesicular element were lessened and the glottic element exaggerated. The vocal resonance was usually increased. Only three cases presented signs of patchy emphysema. In only six were adventitious sounds present—in all fine sibilant rhonchi. The apex beat was frequently displaced 1·25 to 2·2 cm. outwards. The "effort syndrome" was commonly present. Tubercle bacilli were never found in the sputum. Of the prognosis nothing definite can yet be said. The possibility of the supervention of tuberculosis must be borne in mind. Treatment proved unsatisfactory. The return to civil life frequently produced improvement, especially if regular exercise was taken, but exertion was generally avoided by the patient. A series of graduated exercises under supervision is therefore to be advised. In addition to long walks gardening or wood-chopping, slowly increasing the daily amount of work, and open-air life are to be recommended. Drugs seemed of little value. In cases of profuse expectoration a mixture of potassium iodide and creosote seemed to give some relief. These facts show that organic changes are present in the lungs. The most common is peri-bronchial fibrosis, with enlargement of the glands, in the hilum and posterior mediastinum. Why the signs are greatest on the right side is not obvious. Captain Cowen does not agree with the conclusion of a French writer, Achard, that "only a small percentage of the surviving gas casualties will suffer from any permanent disability." In the same number of the journal Lieutenant-Colonel C. E. Dennis, radiographer to the 5th Australian General Hospital, gives his findings in this series of cases. Radioscopy, as a rule, revealed no gross lesion; the apices lighted up evenly, but the whole chest usually showed diminished translucency. Diaphragmatic movement on deep inspiration was always restricted, except on coughing, which showed that the restriction was functional. The hilus shadows were usually more evident than normal, often with patchiness due to glandular enlargement. One condition was so diffuse and faint that it was not at first recognised—an increase in the fibrous tissue of the lungs. This caused diminished translucency, manifested by a thickening and increase in the lines radiating from the hilus. Radiograms confirmed this view.

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[1] THE LANCET, Jan. 24th, 1920, p. 220.

[1] Medical Journal of Australia, Nov. 1st, 1919.

THE INDICATIONS FOR CÆSAREAN SECTION

THE frequency with which Cæsarean section is being performed calls for consideration. The safety with which nowadays the abdomen can be opened, and the familiarity of many practitioners with this branch of surgery, are likely to cause this relatively easy operation to be performed for a variety of conditions, in which the question as to whether it is or is not the best mode of delivery is a matter upon which there may be differences of opinion. While the student is becoming more and more familiar with the technique of abdominal operations, he is seeing fewer and fewer difficult cases of labour delivered by the vagina. The performance of a simple Cæsarean section calls for less skill and previous training than is required to deliver a patient in a complicated case of labour through the natural passages. We published recently a clinical note by Mr. T. H. Morse on a case of labour obstructed by an ovarian tumour in which, after removing the tumour by the abdomen, he quite rightly and properly proceeded to deliver the patient by the vagina. Unfortunately, the child was born dead, and this fact has led certain of our readers to question the treatment adopted and to suggest that the right thing would have been Cæsarean section to save the child. That mode of delivery was, no doubt, duly considered as an alternative by Mr Morse, who, in our opinion, was right in regarding ovariotomy, followed by delivery per vaginam as the proper treatment. This is the method laid down in text-books, and it has been proved to be the most successful mode of dealing with such cases.

A paper contributed to our columns this week by Mr. Beckwith Whitehouse gives a good summary of the view held with regard to Cæsarean section by some, at any rate, of the younger obstetricians. The decision as to the advisability of this operation largely turns upon the relative value placed upon the life of the mother as compared with that of the life of the child. Mr. Whitehouse, in contrasting the results obtained by the induction of premature labour with those following Cæsarean section, states that the maternal mortality following the induction of premature labour is nil, while the fœtal mortality, as calculated by Eden, is some 13 per cent.; from these figures he argues that we are justified in risking a possible maternal mortality of some 3 per cent. for the sake of lowering this fœtal mortality of 13 per cent. But are we? Which are the more valuable to the community as a whole: three mothers, perhaps in the prime of life and still in the child-bearing period, or a possible ten new-born children? As Mr. Whitehouse points out in his interesting paper, the proper treatment for any case of obstructed labour is its prevention and the recognition of the condition which is likely to lead to the obstruction. Every case of obstructed labour recognised for the first time late in labour is an indication that someone has blundered. We believe that however abhorrent it may be to craniotomise a living child, yet in a few of these cases it must and should be done. Mr. Whitehouse's estimate of a maternal mortality of 8 per cent. for craniotomy makes no distinction between craniotomy on the dead child, which has a mortality of rather less, in our opinion, than the figure he quotes, and craniotomy on the living child, which has a very much lower mortality, only some 1–2 per cent., and which alone is comparable to that of Cæsarean section. The reason for this is, of course, that in the one case the woman is often in extremis before the operation is performed, whereas when the necessity for it is recognised, before futile and prolonged attempts have been made to deliver, the risk is much less.

Cæsarean section is now being performed with considerable frequency for placenta prævia. There are many conditions threatening the life of the child in this complication of labour besides that consequent on podalic version, whether bipolar or internal. If Cæsarean section is to be performed for placenta prævia the cases must be carefully chosen. The fact that only one-third of them go to full term, and the grave risk from the abnormal position of the placenta to the life of the child, must be borne in mind, while in any large number of cases it is very unlikely that the maternal mortality will be as low as that after Cæsarean section, when performed as an operation of election for a contracted pelvis. The question as to whether Cæsarean section should become the routine treatment for cases of eclampsia is one even more difficult to answer. It is not easy to believe that the excellent results obtained by the Rotunda method would have been better still if all the patients had been delivered by abdominal section. One of the greatest authorities in this or any other country on renal disease has given his opinion that the performance of Cæsarean section for eclampsia is but a clumsy method of bleeding the patient! No doubt an exaggeration, but possibly one in which there is more than an inkling of truth. The risk of rupture of the scar of a Cæsarean section in a subsequent pregnancy must, in conclusion, be remembered. Most obstetricians who have delivered a patient by this method feel that in any subsequent pregnancy it must be performed again.

THE INTERNATIONAL SOCIETY OF SURGERY.

THE triennial meeting of this society will be held at Paris instead of Brussels this year, from Monday, July 19th, to Friday, July 23rd. The subscription is 50 francs. Members of the medical profession who wish to be nominated for election are requested to communicate with Sir D'Arcy Power, K.B.E., 10A, Chandos-street, Cavendish-square, W. 1. The subjects set for discussion are: (1) The surgery of the heart and great vessels; (2) the treatment of tumours by radium and X rays; (3) the analysis of the blood and its biological reactions in surgical affections; (4) fractures of the femur; (5) the prophylaxis and treatment of tetanus.

THE USE OF CONCEPTS IN MEDICINE.

IN an address on First Principles delivered before the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Jan. 23rd Dr. F. G. Crookshank reproached physicians of the present day, and even epidemiologists, with their content to avoid discussion of first principles and of general notions, holding, with John Hunter, that definitions are, of all things, most damnable. Under the influence of certain schools of thought and certain habits in expression we have become accustomed to speak and write as if a disease were a natural object, permitting physical recognition by those whose business it is to be familiar with diseases of various kinds—in the manner of schoolboys who "spot" a butterfly or a postage stamp. But, Dr. Crookshank goes on—

> ...... the clinical physician varies from day to day the content of his disease-concepts, in accordance with a posteriori results and the dictates of academic convenience: not only in respect of the causes but, as his knowledge accrues, and his point of view changes, in respect of the symptoms described. He makes cross references, and mentally files his observations sometimes one way, sometimes another. So inevitably, what is but a symptom-group to-day may become a "disease" to-morrow: what now appears a disease may, next week, be considered but a part of a greater construct.

The word "epidemic" has, Dr. Crookshank finds, also been used in several senses, of which one is adjectival and obvious, and the others substantive, and this plurality of usage has tended greatly to obscure thought, to the present ascendancy of positivism in epidemiology. We speak of "epidemic disease," meaning thereby disease which we conceive as tending to become prevalent; and we speak of special epidemic diseases, referring thereby to special disease-concepts which embrace the notion of a tendency to prevalence or diffusion. The expressions "disease," "epidemic," and "epidemic constitution" are, in fact, used with reference to correlated symptoms in individuals, cases in communities, and cases and prevalences amongst populations during determinate periods. Each of these usages is legitimate so long as it is understood, but error and confusion are inevitable when specific concepts are regarded as having objective existence. Dr. Crookshank holds that a belief in the objective existence of ideal diseases, epidemics, and epidemic constitutions obscures the value of these mental constructs, the real use of which is as schemata for the prosecution of profitable a posteriori research.

A DIPLOMA IN TUBERCULOSIS.

THE occasion of the gathering of distinguished medical men and laymen interested in the treatment of surgical tuberculosis at a complimentary luncheon in his honour was utilised by Sir Henry Gauvain to press for the establishment of a special diploma in tuberculosis. The Treloar Hospital at Alton, with which his work has been identified, affords unrivalled opportunities for the study of the local manifestations of tuberculosis in childhood, and for some time past intensive post-graduate courses have been held there. It is probably impossible to obtain anywhere such a bird's-eye view of adult tuberculosis, but the Brompton Hospital for Consumption is arranging lectures and demonstrations, of which details may be seen in our advertisement columns. Outside London and Edinburgh little use is made of the abundant teaching material in our tuberculosis institutions. The Trudeau School at Saranac Lake is a reminder of what might be done with great advantage in this country. With the resolution of the Tuberculosis Society to make representations to the various examining bodies on the need for stimulating a systematic study of tuberculosis we have every sympathy.

THE NEW HOSPITAL UNITS.

THE university status of metropolitan medical schools is being completed by the establishment of medical and surgical units which are destined to play a large part in the development of medical education in London. The appointments at St. Bartholomew's and St. Thomas's have already been announced. Since the beginning of the New Year medical and surgical units have been in full working order at University College Hospital. As will be seen in our news columns, this hospital has not hesitated to go outside its own staff, and has appointed, as first assistant to Dr. T. R. Elliott, Dr. J. W. McNee, of Glasgow, and as director of the surgical unit Mr. C. C. Choyce, surgeon to the Great Northern Central Hospital and lately dean of the London School of Tropical Medicine. The University College Hospital School of Medicine is fortunate in possessing ample facilities for pathological research by the directors and their assistants in the laboratories endowed by the wise forethought of the late Professor Charles Graham. In all these hospital units three-fourths of the total approved cost is to be paid by the Board of Education, the remainder being found by the medical school itself. At University College both directors and assistants are debarred from private practice; at St. Bartholomew's first and second assistants are designedly left some free time for outside work; and it will be of interest to see which system proves the more advantageous. While the freedom of the directors from competing interests is an important part of the new organisation, we cannot overlook the great importance to the students of receiving some of their clinical instruction from teachers in close touch with more highly educated patients than constitute at present the in-patient material of general hospitals. This clinical instruction will be given in the future, as it always has been in the past, by the remaining members of the hospital staffs, who will continue to devote their time to clinical and bedside teaching, and who will be able to do this with enhanced energy when relieved from the task of systematic teaching.

THE ADMINISTRATION OF THE SALE OF FOOD AND DRUGS ACTS THROUGH THE WAR.

THE routine work of our authorities responsible for the administration of the Sale of Food and Drugs Acts must through the war have been much disturbed by the system of control over alcoholic beverages, foods, and drugs which was forced upon the Government by the crisis. Judging from a circular issued by the Ministry of Health last week to the officials of the counties and boroughs concerned, there is evidently a movement forward to bring the administration of these Acts into old lines again. In this circular attention is directed to the powers and duties of local authorities under the Sale of Food and Drugs Acts, and a tacit admission is made that in many areas the exercise of these powers and duties was unavoidably curtailed to some extent during the war owing to the shortage of staff and the pressure of special work. The Ministry attach great importance to the effective administration of these Acts, and express the hope that local authorities will take all possible steps to ensure that the powers conferred upon them are fully utilised. We feel sure that this is no reflection on the admirable work of public analysts during anxious and trying times. No public servant has found it harder to keep his public services going throughout this period, since most of them liberated their assistants, who were qualified chemists, to place their technical knowledge at the service of munition making, sanitary work in the field, and the defensive methods set up against the attacks of poison gas. In the meantime cases of food poisoning or of proved fraud were remarkably rare in spite of the great struggle at times to get food products at all. The public owe much to our food controllers—and in this term we include the medical officers and public analysts.

THE DEATH OF MR. CECIL R. C. LYSTER.

IT is a common experience that when the student enters his medical school he finds himself attracted to a special department of the curriculum, and this was early the case with Mr. Cecil R. C. Lyster, whose death, we regret, took place on the 26th inst., owing to his devotion, at the Middlesex Hospital, to the study of radio-therapeutics in its application to malignant disease. He had been in charge of this department for 17 years. Lyster followed closely the physical and chemical methods in constant evidence in the laboratory at Charing Cross Hospital Medical School, then under the direction of Mr. C. W. Heaton, a personal friend of Mr. Lyster's father. He was attracted particularly by spectroscopic methods of analysis, which, no doubt, ultimately led him to reflect on the possible application of radiations to disease. This study received a stimulus from Roentgen's discovery of the X rays produced by the Crookes tube. The study was extended by the introduction of radium. Lyster pursued his work uninterruptedly with remarkable earnestness and convinced of a successful issue, a consummation which would have brought great joy to his heart. Whatever the future of radiology may be, Lyster's name will count in the ranks of those devoted men, who, knowing full well the sacrifices involved, made a determined and splendid attempt to relieve suffering humanity from a terrible scourge. The mystery surrounding the fact that X rays and other emanations can set up an ugly pathological process, while at the same time they are employed presumably on scientific grounds to stop the progress of such a process, is in urgent need of study.

AT the Royal College of Physicians of London lectures will be delivered on Tuesdays and Thursdays, at 5 o'clock, as follows:—Milroy lectures: Dr. Aldo Castellani, Feb. 26th, March 2nd, 4th, "The Higher Fungi in Relation to Human Pathology." Goulstonian lectures: Dr. J. L. Birley, March 9th, 11th, 16th, "The Principles of Medical Science as Applied to Military Aviation." Lumleian lectures: Sir John Rose Bradford, March 18th, 23rd, 25th, "The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914–1919."

AT the Royal College of Surgeons of England a Hunterian lecture on the Late Surgery of Gunshot Wounds of the Chest will be delivered by Sir Berkeley Moynihan on Monday, Feb. 2nd, at 5 P.M. On the following Friday, at the same hour, Mr. V. Z. Cope will deliver a lecture on the Surgical Aspect of Dysentery, and on Monday, Feb. 9th, Mr. H. Tyrrell Gray has taken as his subject the Influence of Nerve Impulses on Gastro-intestinal Disorders. Mr. J. Sherren's Hunterian lecture on the Late Results of the Surgical Treatment of Chronic Ulcers of the Stomach and Duodenum follows on Wednesday, Feb. 11th, and on Feb. 13th, 16th, and 18th Mr. Walter G. Spencer delivers three lectures on the Historical Relationship between Experiments on Animals and the Development of Surgery.

A memorandum just issued by the Medical Women's Federation contains suggestions as to the duty of the State in the control of venereal disease, which were approved at a special general meeting of the Federation held last month. While admitting the urgency of the danger to the community from venereal disease, it is the Federation's considered opinion that the measures now being suggested for the stamping out of infection might prove neither prompt nor effective in their action, while radical measures of reform would show quick and cumulative results.

Corrigendum.—In the annotation on Passive Movements in THE LANCET of last week the sentence 14 lines from the top of the page should, of course, read: "Referees without special knowledge should *not* order ......" The context saves the accidental omission of the negative from giving rise to misunderstanding.

"THE LANCET" OF JAN. 3RD, 1920.

THE Manager will be obliged to readers who have not any further use for their copy of THE LANCET of the above date if they will kindly return it to him at 1, Bedford-street, Strand, W.C. 2. The postage on the number is one penny. He will be pleased to pay for copies returned.

MEDICAL PRACTICE IN BELGIUM DURING THE GERMAN INVASION.

(FROM OUR SPECIAL COMMISSIONER.)

II.[1]

THE Belgian National Committee in organising the system of relief established a special department to manage medical relief. This included the provision of drugs. It was the same with dispensing chemists as with medical practitioners; a very large proportion of the patients and customers who used to pay their doctors and pharmacists had been swept away by the German invasion. The few medical practitioners who dispensed medicine to their patients would receive a special indemnity. Seeing how very general the custom of dispensing drugs has been among British practitioners, the measures taken in Belgium are of more than local interest. First of all, it was decided that the cost would be reimbursed by the National Committee only if the medical prescriptions were limited to the small pharmacopœia drawn up by the different provincial committees, according to their local resources. Every prescription had to bear the name and address of the patient, the number of his medical card, and the signature of his doctor. It would be null and void if it went beyond the scope allowed or was presented to others than the duly appointed and recognised pharmacists.

A National System of Medical Relief.

When after a while the service was thoroughly organised and the resources available increased, the indemnity allowed to the medical practitioners was fixed at 75 centimes per month per family. Those practitioners, however, who did their own dispensing received 1 franc 75 centimes. Thus more was allowed for medicine than for medical advice. In the old club practice of England, when the subscription paid was generally 4*s.* per annum per member, it was calculated that 1*s.* out of the 4*s.* per member covered the cost of medicine. On Oct. 1st, 1918, the indemnity in Belgium was raised to 1 franc per month per family, and to 2 francs when the practitioner provided the medicine required. At the normal rate of exchange this would be equal in round figures to 9*s.* 6*d.* per annum per family for medical attendance and another 9*s.* 6*d.* for medicine. These, it is true, are war conditions, drawn up when there was great difficulty in obtaining drugs; but then, again, the local committees limited the prescriptions allowed to such drugs as were available. Extra sums were and still are allowed, for this service continues on a reduced though still on a large scale for special services, as, notably, for accouchements. The patient has the right to call in a doctor or a fully qualified midwife. In either case, the fee given is 15 francs; but if unusual difficulties arise—dystrophia, for instance—the midwife must call in medical assistance. In this case the doctor also receives 15 francs. Any medical attendance required, after nine days since the birth of the child, is considered as usual medical attendance and included in the terms of the annual contract. Among other special services for which a separate arrangement is made according to the circumstances are consultations with oculists, oto-rhino-laryngologists, urologists, dermatologists, and dentists. All such consultations are paid for apart from the usual indemnity and on a scale fixed according to the circumstances. Whenever possible the cost has been evenly divided between the Central and National Committee and the local Provincial Committees.

Immediate Aid for Urgent Need.

Of course, this great and national service only concerns the Belgian Doctors' and Pharmacists' Relief Fund in an indirect manner. It is very evident, however, that but for its existence a far larger number of Belgian doctors would have been reduced to the greatest distress. Also its effects could only be felt gradually, whereas when a village had been attacked, a surgery burnt down, a practice destroyed or at least temporarily suppressed, immediate assistance was urgently needed. Then it was that the funds subscribed and sent over from England were of the greatest use. There was no need to wait for an official inquiry, which is inevitably a slow process. The Belgian Committee for the Aid and Protection of Victimised Doctors and Pharmacists acted at once. Like major and minor surgery, they had two categories of victims. For the worst cases 700 francs were sent at once. In the minor cases the sum given was only 400 francs. Then a monthly pension was paid of various sums up to a maximum of 250 francs per month. With this allowance the medical men thus relieved were just able to exist, though some among them had as many as eight or nine children. Not one of them all ever complained, and some who had received funds from England gladly rendered whatever gratuitous medical service was needed in their neighbourhood. Thus the British Medical Relief Fund was of assistance, in some instances, to the Belgian people at large, as well as to the Belgian doctors, and the Belgian people are not ungrateful. In the schools the children are now taught that they must never forget what Great Britain and the United States of America did for Belgium during the Great War.

Though this excellent lesson is being taught on all sides and profound gratitude is felt, there is also a good deal of grumbling. Of the 600,000 families who had to depend on the National Committee and the contract system of medical aid it set up, only half have been able to resume the payment of their medical attendants. 300,000 families still continued, more than a year after the actual fighting had ceased, to depend on the public medical service established during the war. It is not surprising if there are signs of impatience, and that complaints are made because, for instance, raw materials do not come plentifully from England, so that the Belgian factories and mills may get to work again. Families and neighbours have drawn closer together than they ever were before the war, and strive to encourage and help each other. They are told to work and things will right themselves and be as they were before; but the older people feel that they will not live to see that day. A sense of weariness, of listlessness, has overcome some who suffered beyond endurance or are not strong enough to react. These events have worked out in such a manner as to greatly discourage the best elements of the population.

Unequal Distribution of the War Burden.

During the German occupation a very large portion of the working-class and of the industrial and commercial classes behaved with heroic patriotism. This may especially be said with regard to the railway servants. They preferred starvation and persecution to working for the Germans. Others, on the contrary, accepted employment from the enemy, and thus got food and wages. Manufacturers had their machinery respected, and some made large profits. Now that the country is free again, it is precisely this, the less patriotic section of the population, which to-day is best able to profit by the rebirth of industry. Those who, on the contrary, held out against the Germans, had their machinery destroyed or carried away, and so are not in a position to resume their former industry. The workmen, on their side, who refused to work for the Germans, are also hardly in a better position. More than four years' enforced idleness and underfeeding has destroyed much of their former energy and readiness to work. They have not strength; they long for rest and quietude. They do not want to be troubled; they are deeply depressed. If the cost of living was not so high, a few months of the desired freedom from care and fear, accompanied with a generous diet, would doubtless do much to restore the former efficacy of the Belgian workman, but this desirable solution of the difficulty is not yet possible. It will be very interesting to know what will be the moral and physical effect of the martyrdom of a whole nation. The most terrible fact is that those who behaved best have suffered most. They are therefore the least able to profit by the restoration now slowly taking place. To prevent this glaring injustice should be the first desire of every right-minded person; and, where there is the will, there should be a way.

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[1] Part I. appeared in THE LANCET of Jan. 24th (p. 212).

ASSISTANCE TO VOLUNTARY HOSPITALS.

A RED CROSS SCHEME ADOPTED BY THE BRITISH HOSPITALS' ASSOCIATION AT A CONFERENCE ON JAN. 23RD.

THAT the voluntary hospitals of the country are passing through something not far short of a financial crisis is well known, and the reasons are not far to seek. In the first place the rise in the cost of staff, foodstuffs, drugs, dressings, linen, &c., during the last five years has been abnormal; and in the second place structural alterations, extension, repairs, and even the ordinary annual cleanings and renewals have had to be suspended during the war.

The financial shortage has been to some degree met by the wonderful generosity of the public, which seems almost inexhaustible, even in these days of high taxation and depreciated currency. But those who have to collect money for charitable purposes know that their appeals must now be made in a different way from that which sufficed before the war. In those days the benevolent assistance of a comparatively small number of subscribers answered the purpose. Now the appeal must be organised and made to the masses, who are ready enough to give, but who cannot afford to give large sums.

The Organised Collection of Small Donations.

It is only by the organised collection of small donations that the vast sum of money which is needed by the voluntary hospitals of the country can be raised, and it is to the solution of this problem that our attention must be turned.

During the war the Joint Committee of the British Red Cross Society and the Order of St. John was responsible for the establishment and maintenance—beyond the Government capitation grant—of some 1600 auxiliary hospitals. For this purpose a large sum of money had to be collected every year, and an organisation gradually arose which eventually became the greatest collecting agency in the country. "Our Day" has now become not only a national but an imperial institution, as the day on which the hearts of the countless millions of British subjects all over the world go out to those of their race who are sick and suffering. Surely this organisation can be of use in time of peace, as in time of war, and the sympathy of British people will be no less real for civilians who have fallen in the battle of life than it was for the gallant men who were wounded on the battlefield.

For many years the London hospitals have enjoyed the benefit of great collecting organisations, such as King Edward's Hospital Fund, the Hospital Sunday Fund, the Hospital Saturday Fund, and the League of Mercy. The provincial hospitals have no such central funds, and this fact suggests a useful field of work for the Red Cross organisation.

The Joint War Committee of the British Red Cross Society and the Order of St. John has practically finished its work, but it lives again in the form of a Joint Council, which desires to do for civilians work of a similar character to that which was done for soldiers and sailors during the past five years, and to act as a channel through which the generosity of the British public may flow to the relief of suffering and distress.

If the voluntary hospitals throughout the country will accept the assistance of the Red Cross, then assuredly the spirit of sympathy which made the war work of the Joint Committee possible will not be wanting for the equally important peace work of the Joint Council.

Help other than Financial.

There are many ways in which the Red Cross can help the voluntary hospitals in addition to the collection of money. The preparation of statistical tables similar to those issued by King Edward's Hospital Fund would be of the utmost use to hospitals by giving them the means of comparison with each other's figures, and thus detecting possible loss and waste.

Information and statistics could also be codified and tabulated at a central office in London, where there would be a reference library, to which application could be made for the latest details regarding all matters connected with hospitals, such as planning, construction, heating, lighting, &c.

Stores.—The Joint Council has storage accommodation in London, and proposes to invite gifts of hospital stores, &c., from which grants could be made to hospitals in need. In connexion with stores (especially the requirements of surgery and dispensary) it may be pointed out that the Council will be in a position to buy on the most advantageous terms under expert advice, and it is thought that in this way it would be of considerable use to those hospitals which desired to avail themselves of the opportunity, as the Red Cross undoubtedly was to many hospitals and to the Government itself during the war.

Buying on analysis.—At headquarters facilities would be provided for the analysis of articles of hospital consumption, and for the supply of details with regard to prices and deliveries of all hospital commodities. Here, also, if necessary, would be stored in bulk non-perishable drugs, dressings, &c., from which applicant hospitals might draw, should they so desire.

Work parties.—It is hoped that some at least of the work parties that did such valuable service during the war in providing the necessary hospital garments, &c., will be inclined to carry on their good work in time of peace. A circular is being addressed to the counties asking the work parties, as during the war, to provide first for the necessities of their own local hospitals, and then to send up to headquarters such surplus stock as may be available. If it were found that the response from the counties warranted it, a statement setting forth the particular articles of which the hospitals and child welfare centres were most in need would be issued from time to time.

War and peace library.—The War and Peace Hospitals Library, which has distributed such a vast number of books and magazines to military hospitals during the past five years, still remains in existence and is willing to carry on its work in peace time for the civilian hospitals. It is obvious that literature is just as much required by civilian patients in hospital as by sick and wounded sailors and soldiers, and it is earnestly hoped that the Red Cross organisations throughout the country will continue to give to the Library that unfailing and generous support which they have given during the past five years.

The Only Condition Attached to the Help.

These are some of the ways in which the Joint Council of the British Red Cross Society and the Order of St. John could help the provincial hospitals, and all that the hospitals would have to do in return would be to keep their accounts on the uniform system, which is unanimously accepted by the London hospitals and by most of the larger hospitals in the country.

This Memorandum does not pretend to enter into details, as these must be settled in consultation with the representatives of the hospitals themselves, should the scheme meet with acceptance. It must only be regarded as an outline of the way in which a great voluntary organisation might prove of assistance to voluntary hospitals. It is obvious that the money grants that could be made to hospitals must necessarily depend upon the measure of financial support received from the public by the Joint Council, but even if no large amount of money were forthcoming there would undoubtedly be much to be gained by the establishment of a central bureau where expert advice and statistical information could always be obtained, and where particulars of any branch of work in which an individual hospital excelled would be available for the use of other hospitals and for the benefit of the community in general.

January, 1920.

HOUSING NOTES.

The Problem of the Unfit House.

THE problem of the house unfit for human habitation is an ever-present one, accentuated only by recent events. An interesting aspect of the question is discussed in his annual report for 1918 by Dr. J. W. Hembrough, the county medical officer of health for Northumberland, whose death was recorded in our issue of last week. This report is, of course, founded on the general position of the last year of the war, when the difficulties of labour and cost could not be clearly anticipated. Dr. Hembrough points out the need, on the part of the local authorities concerned, of a definite policy for dealing with the 1500 houses or more in that county which are unfit for human habitation and incapable of being made fit. He points out the danger of postponing closing orders until the local housing scheme has been *completed*; for if the contemplated scheme prove insufficient or be incompletely carried out the unfit houses may continue to be occupied. Dr. Hembrough therefore suggests that closing orders should, as the building scheme progresses, be issued in the proportion that the number of unfit houses bears to the number of new houses in the council's scheme, so that the occupation of the unfit houses would terminate with the completion of the housing scheme. This is a wise and valuable suggestion. Its influence would probably extend beyond its immediate purpose of ensuring the closure of unfit houses, and would affect the primary problem—the decision as to whether a house shall, or shall not, be labelled as unfit for human habitation. Rightly or wrongly, there is little doubt that in some areas the number of houses so labelled has been limited by the doubt as to the likelihood of such action being made effective by closure under present conditions.

The decision as to whether a house is unfit or not has always been a matter bristling with difficulties. No clear-cut rule can be promulgated. Text-books tabulate lists of defects rendering a house unfit for occupation. The Ministry of Health has recently issued an admirable manual on the subject in which the general principles are clearly summarised. But the rub comes when for the arm-chair perusal of suggestions is substituted their practical application to a particular cottage. It is the experience of all that general standards as to fitness in housing need often remarkable adjustment in individual cases. The unsound house might almost be said to bear to the medical officer of health the same relation as does the sick patient to the private practitioner—text-books are indispensable, but the individual, whether house or patient, often will not square with the type. The ultimate question to be answered is not, "Is this house damp, or dark, or cramped?" but the much vaguer one, "Is this house liable through structural defect to affect the health of its occupants so adversely that it should not be occupied?" This standard, vague enough at any time, has of late been confused by several extraneous considerations. One has already been mentioned—the doubt as to whether the condemnation of a house could be made effective. Other cross-currents have also come into play. For instance, there is the idealist who sees in the present discontent a chance of creating a new heaven and a new earth by a wholesale destruction of the old. There is also the administrator who feels that in the face of present economic stress and high prices he must not produce still greater scarcity by condemning houses which under happier circumstances he would not allow to remain standing.

While probably most medical officers of health have managed to steer a clear course between the opposing policies, the experience of the past few months, now crystallised in the housing surveys of the various districts, is likely to show that in some areas the medical officer of health has been deflected to some extent from his course in this matter. This is, on the whole, most likely to apply to part-time officers in the smaller districts, where the conditions of appointment render the medical officer more susceptible than his whole-time colleague elsewhere to the views of members of his authority. All such deviations will doubtless right themselves in time. It is probable that in a number of areas more houses, at present classed as merely below a reasonable standard or as unfit but capable of being made fit, will definitely be condemned when it is realised that a methodical procedure, such as that suggested by Dr. Hembrough, for their closure will distribute the burden equitably, ensure effective closure, and remove many of the difficulties anticipated. It becomes increasingly clear that the only wise rule for the medical officer of health in his consideration of housing is to ignore all temporary economic and social vagaries, and to have regard solely to the relation of house to health. Only thus will he establish for himself a standard which will not be stultified in future years.

Official "Illegalities."

The housing department of the Ministry of Health has the unusual experience of being in the position of an examinee whose work has been "turned down." The Greenwich borough council is concerning itself with the conversion of 30 or 40 old houses into flats. The plans prepared for the council in the first place were not proceeded with, the Ministry's housing department being invited to carry the work through on its own lines. The medical officer for Greenwich now reports that the conversion has produced more flats than the laws of hygiene, and even the regulations of the Town Planning (1919) Act, will allow. He has recommended the borough council to reconstruct the buildings according to the original plans. The medical officer's report has been forwarded to the Ministry of Health.

The Shortage of Labour.

There has been little or no response to the Prime Minister's appeal for dilution of labour in the building trade and the shortage of bricklayers remains the most difficult factor in the housing problem. The official publication of the Ministry on the subject concerns itself more and more with methods of constructing houses. In the meantime an important experiment is being commenced in Manchester, where a Building Guild Committee has been formed. This committee claims to have a monopoly of the labour, and states, moreover, that through its agency alone the Manchester housing scheme can be carried into effect. The main idea is that if the industry is controlled by the workers themselves work will be given ungrudgingly and far more will be carried through than is possible by unwilling work done for a contractor. If the tender of this committee is accepted—and there seems no great likelihood of its being refused—the guild movement may spread.

Garden Cities.

It is satisfactory to note that the encouragement given by the Government to ideal town-planning has not been without effect. One of the most interesting schemes of this nature, because it is in a neighbourhood where ideal planning has been little seen until now, is the scheme for the Isle of Dogs. Here 120 houses are to be built, the whole scheme being estimated to cost £110,000, not including the price of the land, which is stated to have cost nearly £10,000. The mayor encouraged the builders by saying that there was no reason why they themselves should not occupy some of the finished houses.

The Renovation of Slums.

The last two numbers of *Housing* contain an account, under the title of "A Glasgow Housing Experiment," of the experience of that city in making "bad areas" healthy. The bad areas selected for treatment contained houses whose frameworks were sound but whose interiors were dilapidated and verminous. The inhabitants conformed closely to their environment, and the general atmosphere was one of disease and disorder. These areas are now "healthy and respectable working-class districts." The houses were all overhauled in the absence of their tenants—a happy condition not easy to achieve at the present time. Where lighting conditions were bad these were improved by rearrangement of interiors. The cost of these alterations was considerable and the difficulties in "renovating" the tenants were at least as great as those met with in their homes. But in the result faith and perseverance have been justified.

BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES:

DEPUTATION TO DR. ADDISON.

ON Jan. 23rd the Minister of Health received a deputation from the Federation of Medical and Allied Societies, which waited on him to give effect to the resolutions adopted at the Conference at Steinway Hall on Dec. 12th, 1919.[1] The deputation, which was introduced by Sir W. Watson Cheyne, M.P., and supported by Lieutenant-Colonel F. E. Fremantle, M.P., consisted of the following: Dr. Arthur Latham, Dr. E. H. Stancomb, Sir Thomas Horder, Dr. J. F. Gordon Dill, Dr. Charles Buttar, Dr. N. Howard Mummery, Mr. Frank Coke, Dr. R. H. Cole, Dr. Rashell Davison, Miss Eaton, Sir William Arbuthnot Lane, Bart., C.B., M.S., Sir Thomas Parkinson, M.D., Dr. William Pasteur, C.B., C.M.G., Dr. B. A. Richmond, Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S., Mr. F. P. Rowsell, J.P., and Dr. Arthur Shadwell. The object was to represent to the Minister of Health that a public inquiry should be held as to the conditions of service under the National Insurance Medical Benefit, and as to how far those conditions promote efficiency on the part of the medical profession and give commensurate results to the community.

It was emphasised by Dr. Arthur Latham, Sir Thomas Horder, and Dr. Charles Buttar, speaking for the deputation, that the existing regulations do not permit the insured person to receive all that the science of medicine has to give, nor enable the medical practitioner engaged in panel service to do the effective work that he is able and anxious to do; that there exists widespread dissatisfaction with the working of the panel system both on the part of the insured and the panel practitioner; that the Act has now been in force seven years without any public inquiry having been made to ascertain its efficiency or inefficiency; that such an inquiry would seem to be a necessary preliminary to any expansion or alteration of the provisions of the Act; that the question of remuneration of panel practitioners, which has recently been a matter of negotiation between the Minister and the Insurance Acts Committee of the British Medical Association and which has now gone to arbitration, is of secondary importance to the question of efficiency; and that the Treasury grant for the purpose should be governed by the amount necessary to ensure a satisfactory service, and *not* be reviewed, as Dr. Addison on Jan. 14th, 1920, stated it would be, in the light of other national commitments. It was pointed out that upon the health of the workers depends the solution of industrial unrest, and that to continue an unpopular and apparently inefficient experiment in the medical treatment of a large proportion of the community is likely to increase that unrest.

Dr. Addison's Reply.

Dr. Addison, in replying to the deputation, admitted "that the present system was a chaos of effort, and that a public inquiry was likely to instruct the public, the doctors, and himself," but he held that he must await the report of his Consultative Council on the working of the present system before deciding to advise the Cabinet to set up a wider inquiry than the Council could undertake. He aimed "at a scheme whereby a markedly individualistic profession could work better together in the public interest." He also stated that he recognised and appreciated the work that the Federation had done and was doing, that he had always encouraged the movement, and regretted that the organisation of the allied professions in a political sense, as was now being achieved by the Federation, had not been begun 20 years ago.

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[1] THE LANCET, Dec. 20th, 1919, p. 1160.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

A National Medical Service.

THE announcement that the Irish Public Health Council had decided to recommend to the Government the establishment of a National Medical Service with entry by competitive examination has roused much interest in the medical profession in Ireland. It is remembered, of course, that in making this recommendation the Council is following on the lines of the Viceregal Commission which reported in 1906. As the chairman of the present Council was one of the members of that Commission, this decision of the Council should cause no surprise. The report o the Viceregal Commission received a warm welcome both from the public and from the medical profession, and many of its recommendations have become part and parcel of the programme o reform put forward without ceasing by the medica profession in the past 12 years. It is to be hope that the Government of to-day will prove more alive to the necessity of reform than was the Govern ment which pigeon-holed the Viceregal Commissioner's report. The transformation of the dispensary medica service and the other public medical services o Ireland into a unified national service would make changes which one unacquainted with rural condition in Ireland can hardly realise. The medical officers of the dispensary service are rightly discontented with thei present lot. They are underpaid, they serve under almos intolerable conditions, they are subject to the petty tyranny of local boards of guardians, and there is n provision for promotion or transfer. As members of national service, with adequate salaries, satisfactory conditions as regards leave and pensions, and the righ to promotion for good work, they will take a wider view of the possibilities of their career. At present and fo many years past it is too true that the most ambitiou and promising of young Irish medical men sought career outside their native country. In the future on may hope to see their own land retain the services o the best and most capable. The mere establishmen of a National Medical Service will not, however, o itself do this, unless those who will be concerned i framing it take meticulous care that the conditions c the service are thoroughly attractive. In the firs place the scale of salaries must be adequate. I must be such as to compete with other offers ope to young medical men. At the present value o money this means that the initial figure must be good round sum. The members of the service must b assured of facilities for performing their professiona work. The auxiliary services—hospitals, consultations pathological examinations—must be readily accessibl and efficient. There must be proper provision for leave for study leave, for promotion, and for superannuatio If these matters are well thought out in a generou mood one may hope for a bright future in Irish medicine

The Reference to the Irish Medical Committee.

The Irish Public Health Council has asked the Iris Medical Committee to put forward its views as to th functions and duties to be entrusted to the medic officers of the proposed Irish Medical Service, and as t the classes of the community which would be entitle to medical attendance in connexion with that servic The Irish Medical Committee appointed representative to advance certain views, but it cannot in any wa bind the medical practitioners of Ireland until it get back in full the final views of the Irish Public Healt Council on the matter, and then, as arranged, it wi have to call the whole profession together, as it ha no authority of any kind to assent to any arrange ment until the profession is first put in possession of a the facts. There is in Ireland a good deal of differenc of opinion on the question of a medical service betwee the Poor-law medical officers and the panel doctor especially those in the large towns. Does the propose "Irish Medical Service" extend only to the Poor-la doctors, or does it embrace all the general practitioner oor-law and panel doctors? Is it a full-time or part- me service? Neither the Irish Medical Committee, ıe Irish Medical Association, nor any other body dares ıke the responsibility of settling such questions until the hole body of the profession concerned is first consulted. ı any case, the future of such arrangements is un- ertain. The elections of last week demonstrate that ıe Labour Party and those who are in favour of n Irish Republic are now established in control of ıunicipal administration in most of Ireland. They ill more than likely defy the sanctions and regulations the Local Government Board in their administrative ıpacity, and they will have control of some millions local funds.

The Term "Panel Doctor" in Ireland.

Under the Insurance Acts, Ireland, as is well known, as excluded from the whole system of medical enefit, but the term "panel doctor," nevertheless, used in a broad sense for any medical practitioner ho has to do professionally with, and is paid by, ıe insurance authorities. To a certain degree they ight be called "certifiers"—that is, they sign, after camination, that so-and-so is unfit for work. A certain ım of money is put aside by the insurance autho- ties for the payment of those who sign a document these authorities that they are prepared to act as certifiers." The sum is £8000, I am told, for Belfast, ıd it is divided equally among these recognised certifiers" according to the number of insured persons camined, and who send in certificates. Any person n sign a certificate in Ireland, which is accepted by e insurance authorities, but payment by the insurance ıthorities is made *alone* to those recognised in the way have explained, and they may be said to constitute a cognised "panel." Medical benefit exists in the case tuberculosis and of maternity benefit, and recently r the treatment of discharged soldiers.

Presentation to Sir John Byers.

At a complimentary dinner given by his colleagues on e visiting staff of the Royal Victoria Hospital, Belfast, Sir John Byers on the completion of his term of service, piece of plate engraved with their names was handed him by Professor J. A. Lindsay, who presided, and ıo ascribed to Sir John Byers's 37 years' service e establishment and organisation of the special partment for women. Sir John Byers became in 93 professor of midwifery and of diseases of women d children in the Queen's University, Belfast; he ıs for three years chairman of the medical staff of the yal Victoria Hospital, for long a member of its board management, and at various times on the building mmittee of the new hospital and on the executive mmittee of the King Edward VII. Memorial Building r X Ray and Vaccine Therapy. He was knighted 1906.

Tragic Death of Dr. G. A. Hicks, of Belfast.

Dr. George Adams Hicks, whose death occurred from pticæmia, due to a hæmolytic streptococcus, after an eration prick, was only 43 years of age. A native of unty Sligo, he studied at Queen's College, Belfast, aduating M.D. R.U.I. in 1904, and in 1912 he became a llow of the Edinburgh College of Surgeons. For a ne he was demonstrator of physiology in Queen's llege, Belfast. On the resignation of the late Dr. St. Clair Boyd, in 1906, he was appointed one of the rgeons of the Samaritan Hospital, Belfast, where he came an operator of great promise. He is survived a widow and a daughter, to whom the deepest mpathy is extended.

CARDIFF MEDICAL SOCIETY.—This society held a nical evening on Jan. 20th. Two cases of Talipes were own, one after and one before operative treatment, con- uent upon infantile paralysis, in girls aged 12 and 14 ars respectively; and a typical case of Pseudo-hypertrophic scular Paralysis in a lad was exhibited by Dr. Ivor vies.—Mr. A. Howell brought two cases of doubtful gnosis before the society, one in a male of a tumour parently attached to the crest of the right ilium; the ıer, in a woman, of unusual enlargement of liver and een not associated with definite blood changes.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Encephalitis Lethargica.

THE new disease, which seemed to be diminishing, appears to make fresh progress. Cases still occur in the Paris district, and have recently occurred also near Lille and Cherbourg, where several deaths have taken place. About 20 cases have been recorded. The disease causes anxiety, partly on account of the high mortality —1 in 4—but also because of our ignorance as to the method of infection. Its infectious nature is more or less established, since many cases have been reported from the same family or the same house. The respiratory passages are suspected, but nothing certain is known, even of the nature of the disease. M. Netter suggests a filterable virus, comparable to that of epidemic poliomyelitis or infantile paralysis, and that this is the same disease attacking the base of the brain instead of the spinal cord. The cerebro-spinal fluid is negative on examination. If signs of meningeal reaction are observed, according to M. Pierre Marie, the case is probably one of syphilitic or tuberculous meningitis. On the other hand, M. Achard thinks that the presence of white globules in the cerebro-spinal fluid does not exclude encephalitis lethargica. He thinks that in these cases there is a special localisation of influenza; some cases are certainly associated with pneumonia. The public are much agitated about this mysterious disease, and tend to attribute to its agency every case in which sleepiness is observed. Comic papers and music-halls have already adopted it as a topical allusion. The most characteristic signs up to the present are a temperature up to or even over 39° C., lassitude, a tendency to sleep prolonged over several days or even weeks, and ocular paralyses, including ptosis, strabismus, abolition of ocular reflexes, and paralytic changes involving even the facial or trigeminal nerves. According to M. Netter, the disease is not absolutely new, and can be identified in descriptions of former epidemics, especially those in 1712 and in 1890.

Kineplastic Amputations.

Dr. Tuffier has recently described to the Académie de Médecine his first attempts at applying the new method of treatment of amputation stumps recently initiated in Italy, where he has seen it performed. The method consists in preserving the greatest possible length of tendons, which, when covered with skin, are used individually to move different parts of the apparatus attached to the stump. Thus the fingers of an artificial hand can be moved, after an amputation at the wrist, by the flexor tendons, whose ends are folded back and sutured to form rings into which hooks attached to the fingers are inserted. The idea is certainly very ingenious and deserves to attract the attention of surgeons, above all now when so many cripples have great difficulty in following a trade even with the best artificial limbs on the market. Dr. Tuffier, however, after his first experiments, finds that the technique of the operations must be considerably improved before the method can fairly be judged by its results. Hitherto the results in the lower limb have been practically nil; though the quadriceps extensor is an extremely powerful muscle, the isolated tendon does not develop enough strength to lift an artificial leg. Better results were obtained in the hand, but only in a small proportion of the patients operated on. It was surprising to find that in order to procure the amount of flexion obtained by a muscular shortening of $1\frac{1}{2}$ cm. in the living subject, a displacement of 6 or 8 cm. of the tendon of the contracting muscle was required. It is not that the traction made is not powerful as measured by a dynamometer; it is the artificial members that are at fault, and their mechanism will have to be modified. For instance, the hand and the fingers can execute the required movements only when these movements demand no force. However, Dr. Tuffier has seen a workman who was able to pursue his trade of a joiner as skilfully as before being crippled. This case is unique up to the present, and merely serves to justify the hopes founded on the future of this interesting method when it is sufficiently improved in surgical technique and adaptation of apparatus.

Isolation of Influenza Patients.

M. Lesage has just put in a plea, based on information received in connexion with the recent epidemic of influenza in children's hospitals, for isolation of the patients, if only by cubicles. It is the surest means of avoiding the unfortunate results of promiscuous overcrowding, an undeniable factor in the spread of the disease itself and of its complications. For the rest, M. Lesage shows that, contrary to the opinion too often reiterated, infants at the breast are not immune to the disease. If an infant but rarely contracts influenza it is just because, by the nature of things, babies live a relatively isolated life; but if they come into contact with victims of influenza they are liable to attack just as adults are.

Prophylaxis against Dysentery introduced by Demobilised Soldiers.

Considering the number of demobilised men suffering from malaria and dysentery, and liable to communicate the infection to their neighbours, M. Barbary, of Nice, believes that prophylactic measures should help both the patient and the community. As to the former, the principal precautions include the tracing of infected persons and their subsequent free examination and treatment, preferably in connexion with the public dispensaries; whereas the community will be educated by means of circulars, notices, and lectures, as has already been attempted in the case of malaria. In fact, there have been created throughout France prophylactic centres to fight malaria, with medical inspectors whose duty is to follow up demobilised malarial soldiers and to organise prophylactic measures in their neighbourhood, since it has been proved that anopheles mosquitoes can live in France. This already existing organisation could at the same time be adapted to prophylaxis against dysentery, which is much more definitely contagious. The medical inspector would render valuable service in instructing the patient's friends how to prevent the spread of the disease by the proper disinfection of his excretions and their receptacles and of all soiled linen. These precautions are not always taken in ignorant country circles, and the promiscuous conditions in which peasants dwell together create a very favourable medium for the infection, if the doctor does not himself educate them on completely new lines. These measures are the more urgent, as there are at the moment in France a large number of demobilised soldiers who have contracted dysentery in Salonica or the East and who suffer from frequent relapses.

A General Confederation of Scientific Work.

An important event, which will have a marked effect in French and foreign scientific circles, took place on Jan. 16th at the Collège de France. On the motion of M. Charles Moureu, member of l'Académie des Sciences and of l'Académie de Médecine, and with the support of most eminent scientists, among whom were MM. Appell, Lacroise, Picard, Henneguy, a preliminary gathering of delegates of French scientific societies considered the possibility of founding a general Confederation of scientific work. The principal object of the Confederation would be the organisation of scientific research, and it would probably embrace many hundreds of societies and include some 20,000 associates.

Jan. 17th.

THE Minister of Health has promoted Dr. Richard J. Reece, C.B., to be a Senior Medical Officer of the Ministry.

THE Women's Coöperative Guild have issued a circular demanding the control of maternity centres by the local authority rather than by voluntary organisations and adequate representation of working women on committees controlling them. Further, they urge an increase in the number of maternity and infant welfare centres, the provision of a sufficient quantity of milk to all mothers, and of more maternity homes; also the immediate establishment of maternity committees, a service of home helps, a national midwifery service, and a free service of medical specialists.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Administrative County of Essex.

WE presume that the annual report for 1918 is the last that will be written by Dr. John C. Thresh, as he has now retired from the office of medical officer o health for the county, and that Dr. W. A. Bullough, his successor, will be responsible for such reports in future. At the request of Dr. Bullough, Dr. Thresh gives in this his final report, an excellent résumé of the sanitary work done by the Essex County Council since its inauguration in 1888. This is an exceedingly interesting record, of which the county council and Dr. Thresh have good reason to be proud. Among other matters the following are considered: The provision of isolatio hospitals; the prevention of river pollution; water supplies; scavenging and excrement removal; offensive trades; housing of the working classes; sanitary staffs of the different districts in the county; bye-laws i force; school medical inspection; tuberculosis; treatment of venereal diseases; maternity and chil welfare; administration of the Food and Drugs Act and public health laboratory work.

The good work done by Dr. Thresh in connexion wit the water-supplies in Essex is too well known to requir comment. At one time or other he has studied th supply of practically every village in the county, an in this connexion has made thousands of analyses. I the present report, however, he issues a timely warning The existing sources of supply are being depleted. Th water travels so slowly through the sand-beds in th lower London tertiaries, and the outcrop of the sand an of the chalk beneath is so limited that water is no being pumped from the wells more quickly than i can be replaced. Consequently, the water-level i continuously falling, and the difficulty and expense c raising it increases. Some years ago Dr. Thres pointed out that exceedingly minute quantities of chlorin would, under certain conditions, destroy all harmf bacteria in water. This method of sterilisation is c course, adopted by a large number of water compani and by the Metropolitan Water Board. There are rive in Essex yielding water which can be so treated, an in Dr. Thresh's opinion, the time will come when thes waters will have to be utilised.

Dr. Thresh's views on the tuberculosis problem a interesting if somewhat gloomy. He expresses th opinion that at the present time the tuberculosis office in the county are chiefly engaged in doing work whic could be equally well done by the medical practitione who are receiving the pay for it from the insuran funds. The sanatoriums are doing work which coul in many cases, be better done by providing tuberculo families with sanitary houses in the country an supplying nursing and home care, the necessa medical attention being given by the local pract tioners. Hospitals for advanced cases and for cas requiring surgical treatment will always be necessar while open-air institutions for children in the early stag of tuberculosis will always be desirable, but other cas could, as a rule, be better and more economically dea with in their homes than in sanatoriums. It must admitted that sanatorium treatment on a large scale h not yet had a fair trial, and the results obtained so f as the experiment has extended are rendered of litt value on account of war conditions. But the fact th the disease has steadily increased since the Insuran Act was passed does not afford much ground for hop However much sanatoriums are improved, and howev unsuccessful the results, there will always be peop who will attempt to explain these results by allegi inefficient treatment or administration to be the caus To meet these views more and more money will be spe and one can only hope that ultimately there will results commensurate with the expenditure. The can be no question that children in the early sta of tuberculosis, and in the state of malnutrition whi renders them especially susceptible to the disease, are very greatly benefited by open-air treatment, but in many cases this improvement is only temporary, a return to home conditions gradually dissipating the energy they had acquired at the sanatorium. Dr. Thresh is, however, of opinion that on the whole the results in the case of children are more enduring than in the case of adults. With adults the institutional treatment has a distinct educational value, but the curative effect is too often neutralised by worry. Patients worry over their family affairs, they are in doubt as to what is going on at home during their absence, and often they worry, and very naturally, about the future. Something should be done to relieve them of such anxieties, a very difficult but most important problem towards which far more attention should be directed, since until it is solved sanatorium treatment can never be a real success. The State, having once taken charge of the consumptive, should, in Dr. Thresh's view, look after him in loco parentis until his health is fully restored or death has released him from his suffering. The present half measures cannot be expected to have more than a temporary effect, and it is to be hoped that the Ministry of Health will cause the fullest inquiries to be made with reference to the results obtained by the present system with the view of modifying it or supplementing it so as to secure more permanent benefit. We quite agree that, now that the war is over, some such inquiry as that suggested by Dr. Thresh is urgently required, and we hope that the Ministry of Health will lose no time in instituting it.

Having referred to the various sanitary developments in Essex during the last 29 years, Dr. Thresh goes on to compare the mortality statistics at the commencement of the period with those at the end of it, and in order to make the results more reliable he takes the averages for the five years 1890–94 and for 1914–18. This shows that the death-rate from all causes has fallen 18 per cent. The mortality among infants has fallen 37 per cent., whilst the infectious diseases—namely, scarlet fever, small-pox, diphtheria, typhoid fever, measles, and whooping-cough—have decreased no less than 70 per cent. Enteric fever has fallen 80 per cent. Pulmonary tuberculosis had decreased by 33 per cent. before the county campaign for its prevention had commenced, but since then it has increased and the fall now is only 14 per cent. Cancer has increased by 74 per cent. The statistics as a whole are very satisfactory. Had the death-rate for 1890–94 continued to the present time, the deaths in the present administrative county would have been 18 per cent. more than they are. In other words, there has been in recent years a saving of about 2600 lives per annum, and of these about 260 would be infants under 1 year of age. The deaths from infectious diseases have fallen to less than one-third of the previous rate, which is a very remarkable decrease. In Dr. Thresh's view the money spent in sanitary improvements during the last 30 years has been remunerative, and more than commensurate with the expenditure. We do not think anyone will disagree with him.

City of Birmingham.

In common with most other districts in the United Kingdom, Birmingham suffered from a severe epidemic of influenza during 1918, a brief account of which is given by Dr. John Robertson in his annual report for the year in question. The first epidemic wave of the disease commenced in the city in the middle of June, and had come to an end by the third week in July. For practical purposes it may be said to have lasted six weeks, the weather conditions during the period having been warm and dry. This wave was distinguished from the two that followed it by the great rapidity with which the disease spread over the whole of Birmingham, the number of persons attacked being larger than in the subsequent outbreaks. The onset of the malady was usually sudden and often alarming in character, and the accompanying prostration severe. The duration of the malady was short, most of the patients being able to resume work in four or five days. After the first wave had subsided there was an interval of ten weeks, during which few, if any, new cases occurred. Then, between the first week in October and the last week in December, there was a second epidemic wave of great virulence, attacking many of those who had escaped during the summer epidemic. The weather was at the time cold and for the most part dry. The symptoms were similar to those observed in connexion with the summer cases, but more severe in character. Some patients died of influenzal toxæmia in 24 to 48 hours. Many died of acute pneumonia, which, in the majority of cases, was of the nature of a confluent broncho-pneumonia, with some purulent bronchitis. No account is given in this report of the third epidemic wave of influenza in Birmingham, which, presumably, occurred in the early part of 1919. Dr. Robertson states that there appeared to be some evidence that an attack of influenza in June protected against an attack in November, but this was by no means absolute. There is no doubt that a large part of the whole population escaped the disease although frequently exposed to the infection—namely, doctors, nurses, and those looking after the sick. There is, therefore, sufficient evidence that not only does the natural immunity of individuals vary in degree, but also that acquired immunity varies in different individuals.

Among the preventive measures adopted in Birmingham may be mentioned the issue of handbills and the closure of kinemas, while the local press were most helpful in making known from day to day points which were thought to be of general importance. Extra visiting nurses were attached to the district nursing societies, and were found to be most valuable. Some hospital accommodation was made available in the general hospitals, in the union infirmaries, and in the City Hospital, Little Bromwich, for severe cases in which adequate nursing could not be obtained at home. During 1918 there were 2172 deaths directly attributable to influenza and in addition an excessive mortality from pneumonia of 256 deaths above the average. It is, indeed, safe to say that influenza was directly or indirectly the cause of at least 2500 deaths in Birmingham. That is, one out of every five deaths which occurred during the year was due to influenza. Had the disease not visited the city the death-rate would have been 12·4 instead of 15·2 per 1000 of the population.

Dr. Robertson's report also contains an interesting account of an inquiry into the ventilation of kinematograph theatres by Dr. W. H. Davison, assistant medical officer of health, and, in view of the widespread interest in this subject, Dr. Davison's conclusions and recommendations may be quoted. The conclusions are as follows:—

(1) The existing means of ventilation in a considerable number of kinematograph exhibitions is insufficient, and it is impossible to adequately ventilate buildings of this type by ducts in the roof unprovided with fans. It is only by the employment of fans that anything approaching adequate ventilation can be secured.

(2) Better ventilation could be secured in the majority of kinematograph exhibitions with the existing plant working regularly and efficiently. Interference with the fresh air inlets and failure to keep the ducts and fans clean contribute to the unsatisfactory results obtained.

(3) At present there is considerable delay in effecting the necessary repairs to the ventilating plant.

(4) The area of the fresh-air inlets is inadequate in many cases, and there is a tendency to close these openings.

(5) More satisfactory arrangements could be made for heating of fresh air supplied and the prevention of draught arising from the fresh-air inlets by placing the radiators in front of or under these openings.

(6) As regards lighting there does not appear to be any objection to the provision of windows provided they are properly screened.

The following recommendations are made:—

(1) That such a standard of ventilation be prescribed for the kinematograph exhibitions in the city that the proportion of carbonic acid in the air at about the breathing level should not rise beyond 20 volumes per 10,000 of air.

(2) That the space allowed per person should be fixed at a minimum of 120 cubic feet.

(3) That any defects in the fans or other means of ventilation should be reported immediately to the managers, and a book provided in which a record is kept stating the nature of the defect, when it was discovered, and steps taken to have the necessary repairs effected. This record to be available

for inspection by the justices on application for renewal of the licence.

(4) That all fans be tested either before or immediately on being placed in position, in order to ascertain their efficiency for the work they are required to do.

(5) That an automatic indicator, such as a coloured light, be fixed in a prominent position in the building indicating when the fans are working.

(6) That the fresh-air inlets be kept freely open, and that all means of regulating the size of these openings or of closing them be removed.

(7) That every house be provided with a thermometer.

(8) That the provision of windows and the position of entrance and exit doors be considered in relation to the flushing of the building with fresh air during intervals in the performance and during cleaning operations.

VITAL STATISTICS OF ENGLAND AND WALES FOR 1919.

THE following statement shows the birth- and death-rates and the rates of infant mortality in England and Wales, and in certain parts of the country, during the year 1919, the figures being provisional:—

—	Birth-rate per 1000 total population.	Civilian death-rate per 1000 civilian population (crude rate).	Deaths under 1 year per 1000 births.
England and Wales*	18·5	?	89
96 great towns, including London (populations exceeding 50,000 at the Census of 1911)	19·1	13·9	93
148 smaller towns (populations from 20,000 to 50,000 at the Census of 1911)	18·4	12·7	90
London	18·6	13·6	85

* The civilian death-rate for England and Wales cannot be stated at present, the number of non-civilian deaths in the fourth quarter of 1919 not being available.

VITAL STATISTICS OF LONDON DURING DECEMBER, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 10·7 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 6·6, 10·1, and 11·1 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Hammersmith, Fulham, St. Marylebone, Hampstead, and the City of London; and the highest in Finsbury, Bethnal Green, Lambeth, Deptford, Greenwich, and Lewisham. The prevalence of scarlet fever showed a slight decrease from that recorded in the preceding month; this disease was proportionally most prevalent in Chelsea, Islington, Finsbury, Southwark, Lambeth, Battersea, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2841 scarlet fever patients at the end of the month, against 1633, 2293, and 2848 at the end of the three preceding months; the weekly admissions averaged 350, against 265, 340, and 427 in the three preceding months. Diphtheria was slightly more prevalent than in the preceding month, and the number of cases notified during December was higher than in any month of the last two years; the greatest proportional prevalence of this disease was recorded last month in Hammersmith, Hackney, Holborn, the City of London, Bethnal Green, Stepney, and Deptford. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1168, 1405, and 1572 at the end of the three preceding months, further rose to 1845 at the end of December; the weekly admissions averaged 239 against 180, 207, and 215 in the three preceding months. The prevalence of enteric fever was considerably less than in the preceding month; the 25 cases notified last month included 5 in Kensington, and 2 each in Paddington, St. Pancras, Hackney, and Woolwich. There were 25 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 49, 47, and 44 at the end of the three preceding months; the weekly admissions averaged 2, against 7, 6, and 5 in the three preceding months. Erysipelas was proportionally most prevalent in Finsbury, Shoreditch,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING DECEMBER, 1919.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,026,901**	—	**2159**	**1447**	**1**	**25**	—	**45**	**449**	**11**	**4**	**4141**	**10·7**	—	**61**	**23**	**145**	**58**	**4**	**78**	**369**	**1·0**	**5462**	**14·1**
West Districts:																								
Paddington	122,507	—	43	52	—	2	—	2	11	—	—	110	9·4	—	—	1	4	1	—	5	11	0·9	189	16·1
Kensington	151,535	—	51	39	—	5	—	1	16	—	—	112	7·7	—	—	—	3	—	—	2	5	0·3	209	14·4
Hammersmith ...	114,952	—	22	50	—	1	—	2	14	—	—	89	8·1	—	—	—	6	3	—	4	13	1·2	128	11·6
Fulham	145,186	—	41	43	—	1	—	2	13	—	—	100	7·2	—	2	—	4	—	—	—	6	0·4	167	12·0
Chelsea	57,368	—	39	12	—	1	—	1	6	—	—	59	10·7	—	1	—	—	—	—	—	1	0·2	75	13·6
City of Westminst'r	122,046	—	65	23	—	1	—	1	15	—	—	105	9·0	—	1	—	2	—	—	1	4	0·3	157	13·4
North Districts:																								
St. Marylebone ...	92,796	—	47	15	—	—	—	2	3	—	—	67	7·5	—	—	—	1	1	—	1	3	0·3	132	14·8
Hampstead	75,649	—	23	17	—	—	—	1	5	—	—	46	6·3	—	—	—	3	—	—	1	4	0·6	94	13·0
St. Pancras	186,600	—	107	40	—	2	—	2	19	3	1	174	9·7	—	—	—	3	—	1	3	7	0·4	255	14·3
Islington	297,102	—	210	104	—	1	—	—	30	—	1	346	12·1	—	4	6	8	5	—	4	27	0·9	415	14·6
Stoke Newington...	47,426	—	24	14	—	—	—	—	2	—	—	40	8·8	—	—	—	—	1	—	1	2	0·4	61	13·4
Hackney	196,598	—	98	87	—	2	—	1	12	—	—	200	10·6	—	2	2	13	4	—	8	29	1·5	251	13·3
Central Districts:																								
Holborn	35,303	—	11	21	—	—	—	—	4	—	—	36	10·6	—	1	—	1	—	—	1	3	0·9	48	14·2
Finsbury	68,011	—	46	29	—	—	—	1	12	1	—	89	13·6	—	4	—	4	—	—	4	12	1·8	112	17·2
City of London ...	16,138	—	3	7	—	—	—	—	1	—	—	11	7·1	—	—	—	—	—	—	—	—	—	23	14·9
East Districts:																								
Shoreditch	89,675	—	48	36	—	—	—	1	14	—	—	99	11·5	—	10	—	7	1	—	1	19	2·2	175	20·4
Bethnal Green ...	107,362	—	39	103	—	—	—	1	19	—	—	162	15·7	—	—	—	14	5	—	4	23	2·2	150	14·6
Stepney	232,010	—	107	110	—	1	—	2	29	—	—	249	11·2	—	3	—	8	9	1	1	22	1·0	310	13·9
Poplar	143,443	—	67	40	—	1	—	3	11	—	—	122	8·9	—	1	1	3	6	—	5	16	1·2	216	15·7
South Districts:																								
Southwark	167,936	—	113	57	—	—	—	2	31	—	—	203	12·6	—	4	—	7	4	1	4	20	1·2	261	16·2
Bermondsey	107,635	—	49	31	1	1	—	1	18	—	—	101	9·8	—	9	1	6	3	—	—	19	1·8	192	18·6
Lambeth...	272,038	—	192	111	—	1	—	4	41	—	—	349	13·4	—	8	3	12	3	—	3	29	1·1	390	15·0
Battersea	150,023	—	108	40	—	1	—	4	19	1	—	173	12·0	—	—	1	2	2	—	4	9	0·6	172	12·0
Wandsworth... ...	300,787	—	141	117	—	—	—	5	30	1	1	295	10·2	—	—	1	6	3	—	2	12	0·4	335	11·6
Camberwell	239,461	—	134	63	—	1	—	3	26	1	—	228	9·9	—	4	1	6	3	—	11	25	1·1	321	14·0
Deptford...	103,527	—	67	60	—	—	—	2	9	—	—	138	13·9	—	3	3	6	1	—	2	15	1·5	156	15·7
Greenwich	90,440	—	67	35	—	—	—	—	10	—	—	112	12·9	—	2	1	6	—	—	3	12	1·4	136	15·7
Lewisham	161,405	—	147	42	—	1	—	1	17	2	1	211	13·6	—	—	2	4	1	—	—	7	0·5	168	10·9
Woolwich	131,942	—	49	49	—	2	—	—	12	2	—	114	9·0	—	2	—	6	2	1	3	14	1·1	164	13·0
Port of London ...	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Bethnal Green, Southwark, Bermondsey, and Lambeth. Of the 11 cases of cerebro-spinal meningitis, 3 belonged to St. Pancras, 2 to Lewisham, and 2 to Woolwich; while the 4 cases of poliomyelitis belonged respectively to St. Pancras, Islington, Wandsworth, and Lewisham.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended Jan. 3rd, the deaths of 5462 London residents were registered, equal to an annual rate of 14·1 per 1000; in the three preceding months the rates had been 11·2, 14·1, and 14·6 per 1000. The death-rates ranged last month from 10·9 in Lewisham, 11·6 in Hammersmith, 11·6 in Wandsworth, 12·0 in Fulham, and 12·0 in Battersea, to 16·1 in Paddington, 16·2 in Southwark, 17·2 in Finsbury, 18·6 in Bermondsey, and 20·4 in Shoreditch. The 5462 deaths from all causes included 369 which were referred to the principal infectious diseases; of these 61 resulted from measles, 23 from scarlet fever, 145 from diphtheria, 58 from whooping-cough, 4 from enteric fever, and 78 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Kensington, Fulham, Chelsea, the City of Westminster, St. Marylebone, St. Pancras, Stoke Newington, and Wandsworth, and the highest in Hackney, Finsbury, Shoreditch, Bethnal Green, Bermondsey, and Deptford. The 61 deaths from measles were less than half the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Finsbury, Shoreditch, Bermondsey, Lambeth, and Deptford. The 23 fatal cases of scarlet fever were 4 more than the average number, and included 6 in Islington, 3 in Lambeth, 3 in Deptford, 2 in Hackney, and 2 in Lewisham. The 145 deaths from diphtheria were nearly double the average; the greatest proportional mortality from this disease occurred in Hackney, Finsbury, Shoreditch, Bethnal Green, Deptford, and Greenwich. The 58 fatal cases of whooping-cough were equal to the average number; this disease was proportionally most fatal in Hammersmith, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. Four deaths from enteric fever were registered during the month, against an average of 9. The 78 fatal cases of infantile diarrhœa were 26 below the average; the greatest proportional mortality from this disease occurred in Paddington, Hammersmith, Hackney, Finsbury, Bethnal Green, Poplar, and Camberwell. In conclusion, it may be stated that the aggregate mortality in London during December from these principal infectious diseases was 6·8 per cent. below the average.

(Week ended Jan. 24th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 16·2, 15·8, and 15·6 in the three preceding weeks, further declined to 15·3 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·1, or 0·7 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·1 in Aberdare, 7·1 in Gillingham, and 8·7 in Southend-on-Sea, to 24·1 in Grimsby, 25·0 in South Shields, and 27·5 in Carlisle. The principal epidemic diseases caused 351 deaths, which corresponded to an annual rate of 1·1 per 1000, and comprised 96 from measles, 84 from whooping-cough, 77 from diphtheria, 71 from infantile diarrhœa, 18 from scarlet fever, and 15 from enteric fever. Measles caused a death-rate of 1·5 in Preston, 2·0 in Dewsbury, 2·3 in Bootle, and 4·7 in Grimsby; and whooping-cough of 1·1 in Portsmouth, 1·6 in Birkenhead, 1·8 in Walsall, and 2·2 in Smethwick. The 85 deaths from influenza showed an increase of 23 compared with the previous week, and included 24 in London, 9 in Leeds, and 3 each in Birmingham, Manchester, and Newcastle-upon-Tyne. There were 2614 cases of scarlet fever and 1994 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2758 and 1945 respectively at the end of the previous week. The causes of 42 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 6 in Liverpool, and 3 each in Birkenhead and St. Helens.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 15·9, 16·6, and 16·1 in the three preceding weeks, fell to 15·3 per 1000. The 356 deaths in Glasgow corresponded to an annual rate of 16·7 per 1000, and included 6 from infantile diarrhœa, 4 from measles, 3 from diphtheria, and 1 each from enteric fever and whooping-cough. The 100 deaths in Edinburgh were equal to a rate of 15·3 per 1000, and included 2 from measles and 1 from diphtheria.

The Services.

ARMY PAY OF CIVILIAN MEDICAL PRACTITIONERS.

A ROYAL Warrant increases the rate of remuneration of civilian medical practitioners engaged under the Pay Warrant to render medical attendance and examine recruits where army medical practitioners are not available. The substituted rates for medical attendance (including vaccination and cost of medicines) are £7 10*s.* a year if there are fewer than 10 persons entitled to medical attendance, and when there are 10 persons or more £15 for every complete 25, or portion of 25, provided that the total emoluments for all services, exclusive of the examination of recruits, shall not in any instance exceed £1 10*s.* for any one day. The increase is in general on a 50 per cent. basis. For examination of recruits 2*s.* 6*d.* is allowed for each recruit for the Regular Forces, subject to a maximum of £2 a day for services under this head.

ARMY MEDICAL SERVICE.

Temp. Col. W. Hunter, C.B. (Captain, R.A.M.C., T.F.), relinquishes his temporary commission on reposting.

ROYAL ARMY MEDICAL CORPS.

The undermentioned to be acting Colonel: Major (acting Lieut.-Col.) G. W. Heron.

The undermentioned to be acting Lieutenant-Colonels: Major T. H. Scott; Capt. C. H. K. Smith; Temp. Capt. A. J. Blake.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors W. H. Forsyth, A. W. Gater, B. A. Odlum, R. B. Hole, W. I. Thompson, E. G. Ffrench, T. B. Unwin, O. Ievers; Majors and Bt. Lieut.-Cols. D. S. Skelton, M. G. Winder; Capts. A. J. Hickey, L. T. Poole, G. H. Stacke, W. D. Anderton.

Temp. Major W. E. Home to be acting Lieutenant-Colonel whilst commanding troops on a hospital ship.

Major and Bt. Lieut.-Col. D. S. Skelton is seconded for service under the Colonial Office.

Major J. E. H. Gatt retires on retired pay.

Major E. G. R. Lithgow is restored to the establishment.

Temp. Capt. (acting Major) W. M. Oakden relinquishes the pay and allowances of his acting rank.

The undermentioned relinquish the acting rank of Major: Capts. J. P. Litt, T. F. Kennedy, G. E. A. Argo, F. G. Flood, G. G. B. Holroyde, S. J. L. Lindeman, F. R. H. Mollan, H. W. Browne; Temp. Capts. R. B. Blair, H. B. G. Russell, R. A. Steven, R. W. S. Christmas, V. L. Connolly, W. C. Horton, R. Thomson, C. C. Harrison, A. Brown, A. M. Malcolmson, A. E. Quine, W. D. Cruickshank, R. S. S. Statham, C. N. Coad, A. Scott, F. C. Lees, W. Montgomery, S. J. W. Donald, F. De S. McMenamin, H. W. Turner, S. E. Picken.

Temp. Capt. R. Scott to be acting Major.

Capt. J. P. Quinn resigns his commission.

F. J. Waldmeier, late temporary Captain, and Temp. Lieut. S. P. Hyam to be temporary Captains.

H. P. Hodge to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Lieut.-Cols. J. F. Haswell and H. J. Roberts (Lieutenant-Colonel, T.F. Reserve). Temporary Majors retaining the rank of Major: S. A. Smith (Major, Canadian A.M.C.) and J. A. Devine. Temp. Capt. W. N. Parker (granted rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: V. L. Connolly, W. D. Cruickshank, E. B. Gunson, I. Jones, C. N. Coad, C. E. Walker. Temporary Captains retaining the rank of Captain: T. Howell, E. U. Williams, S. J. Graham, J. B. Mason, J. A. Frost, R. J. Wilson, F. A. Kerr, J. S. Prentice, A. T. Gibb, J. R. Pate, R. G. Barlow, J. Campbell, O. G. Evans, H. F. Ferguson, R. J. B. Leney, G. H. Fraser, R. M. De Mowbray, S. C. W. Iredale, J. Hill, E. W. L. Sharp, W. Duffy, R. C. Hewitt, M. K. Robertson, G. C. Hartley, W. Gemmill, T. F. Ryan, C. A. D. Bryan, C. H. G. Lyall, R. H. Fletcher, H. G. Baynes.

GENERAL RESERVE OF OFFICERS.

Capt. F. E. Bissell (late Captain, R.A.M.C., Special Reserve) is granted the rank of Lieutenant-Colonel on ceasing to be employed.

SPECIAL RESERVE OF OFFICERS.

Capt. E. M. Cowell relinquishes the acting rank of Lieutenant-Colonel.

The undermentioned Captains relinquish the acting rank of Major: D. Dougal, K. K. Drury.

Captains relinquishing their commissions and granted the rank of Major: M. W. Ruthven, H. C. Rook, T. Lindsay, T. McEwen.

Captains relinquishing their commissions and retaining the rank of Captain: N. S. R. Lorraine, G. E. Shand, W. C. Davidson, J. C. A. McCalden, R. Stewart, F. Balkwill, T. G. James, J. R. Cox, H. E. Bamber, W. Feldman, G. H. Gidlow-Jackson, J. Taylor, R. F. Pinson, N. H. Harrison, J. Y. McLean, T. W. Wylie, R. A. Stewart, S. D. G. McEntire, P. MacCallum, J. R. John.

Lieut. R. Graham relinquishes his commission and retains the rank of Lieutenant.

TERRITORIAL FORCE.

Major (acting Col.) C. H. Lindsay, C.M.G., relinquishes the acting rank of Colonel on vacating the appointment of Assistant Director of Medical Services.

Capt. E. F. Buzzard, A.M.S., from 5th London General Hospital, to be Colonel.

Capts. (acting Lieut.-Cols.) O. W. D. Steel and C. H. J. Fagan relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capts. (acting Majors) C. G. Strachan and B. M. Footner relinquish the acting rank of Major on ceasing to be specially employed.

Capt. G. A. Williamson is seconded for service with the Aberdeen University Contingent, Senior Division, O.T.C., and is appointed to command the Unit.

Capt. A. Mitchell is seconded.

2nd London Sanitary Company: Capt. H. Jessop relinquishes his commission and retains the rank of Captain. Lieut. A. S. Reeves to be Captain.

1st Eastern General Hospital: Major H. B. Roderick is seconded for service with the Cambridge University Contingent (Medical Unit), Senior Division, O.T.C.

2nd South-Western Mounted Brigade Field Ambulance: Capt. (temp. Major) J. M. Dupont relinquishes the temporary rank of Major on ceasing to be specially employed.

3rd Southern General Hospital: Capt. (acting Major) R. Ritson relinquishes the acting rank of Major on ceasing to be specially employed, and is restored to the establishment.

2nd Western General Hospital: Major (acting Lieut.-Col.) A. Wilson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Supernumerary for Service with the Officers' Training Corps: F. C. Purser (Major in Army) to be Captain for service with Medical Unit, Royal College of Surgeons, Ireland, O.T.C.

ROYAL AIR FORCE.

Medical Branch.—Flight Lieut. J. E. Dunbar (Captain, R.A.M.C., T.F.) relinquishes his temporary R.A.F. commission on return to Army duty.

Capt. J. Paxton and Lieut. (acting Capt.) C. Duggan are transferred to the unemployed list.

Dental Branch.—D. Blair is granted a temporary commission as Flight Lieutenant.

INDIAN MEDICAL SERVICE.

Captain to be Major: J. B. Hanafin. Captains to be temporary Majors: J. R. D. Webb, R. B. Nicholson, W. R. Stewart. Temporary Lieutenants to be temporary Captains: A. M. V. Hesterlow, Jatindra Mohan Mukharji, Balbir Singh, Sukumar Sanyal, Oyitti Churia Madhavan, Gopal Narayan Khanna, Bhuthapuri Thevapperumal Krishnan, Indra Narayan Sen Gupta, Mervanji Dinshah Printer, Shankar Ganesh Chavan, Periyatan Katinjippally Raman Nambiar, Kesheo Ganesh Mohile, Amulya Chandra Roy, Valente de Souza, Narayana Subrahmania Aiyar, Brij Ratan Jain, Chandrian Krishna Row, Ganesh Dattatraya Apte, Pandipeddi Kutumbiah, Coimbatore Sivaramkrishna Suryanarayan Sarma, Bamanji Pestanji Daruwala, Gautam Kumar, Chenji Krishnaswami Pillay, Prabodh Nath Bagchi, Kailashnath Waghray, Dhirendra Chandra Mazumdar, Jagan Nath Goil, Sahibzada Ahmed Khan, Mangalore Subha Rao, Kali Sahai Nigam, E. Nissim.

THE HONOURS LIST.

THE following awards to medical officers, for gallantry and devotion to duty in the places mentioned, are announced:—

C.B.E.

Major (temp. Col.) J. T. Clarke, C.A.M.C. (Siberia).

Military Cross.

Capt. James Vallance, R.A.M.C. (North Russia).

For great gallantry and devotion to duty in dressing and attending wounded under fire. As each objective was gained he followed up immediately, dressing and bringing in all wounded on his way. In one village the Bolsheviks landed a party of sailors, and it was only through his untiring efforts that the wounded were removed to a place of safety.

Temp. Asst. Surg. James Michael Connor, I.M.D. (India).

For marked gallantry and devotion to duty at Barley Hill Piquet on July 18th, 1919. He went out from Fort Maude, and, after being wounded himself, attended the wounded under fire until they were evacuated. He was again wounded while leaving, but continued at duty at Fort Maude until the 20th.

BROUGHT TO NOTICE.

The names of the following members of the I.M.S. have been brought to the notice of the Secretary of State for War for valuable services rendered in India during the war:—Lt.-Col. H. Boulton; Lt.-Col. (temp. Col.) H. Burden, C.I.E.; Capt. J. B. Hanafin; Maj. (acting Lt.-Col.) J. B. D. Hunter; Capt. J. A. A. Kernahan; Capt. (temp. Lt.-Col.) J. V. Macdonald; Temp. Lt. L. J. P. Mordaunt; Capt. R. R. M. Porter; Capt. J. A. Sinton, V.C.; Temp. Lt. Mahomed Nawaz; Capt. (temp. Maj.) M. A. Rahman.

And the name of the following member of the Canadian A.M.C. for valuable and distinguished services rendered in connexion with military operations in Siberia:—Maj. (temp. Col.) J. T. Clarke.

FOREIGN DECORATIONS.

American.

Distinguished Service Medal.—Hon. Maj.-Gen. Sir A. A. Bowlby, Kt., K.C.B., K.C.M.G., K.C.V.O.; Temp. Maj.-Gen. Sir R. Jones, Kt., K.B.E., C.B., T.D., A.M.S.; Maj.-Gen. Sir H. N. Thompson, K.C.M.G., C.B., D.S.O., late R.A.M.C.; Hon. Maj.-Gen. Sir C. S. Wallace, K.C.M.G., C.B., late R.A.M.C.

Egyptian.

Order of the Nile.—3rd Class: Lt.-Col. C. H. Anderson, M.C., Austr. A.M.C.; Maj. and Bt. Lt.-Col. (acting Lt.-Col.) H. V. Bagshawe, C.B.E., D.S.O., R.A.M.C.; Capt. (acting Lt.-Col.) H. S. Beadles, R.A.M.C. (T.F.); Maj. (acting Lt.-Col.) A. G. Coullie, I.M.S.; Lt.-Col. (temp. Col.) T. H. Forrest, D.S.O., R.A.M.C. (T.F.); Maj. (acting Lt.-Col.) G. W. Heron, D.S.O., O.B.E., R.A.M.C.; Maj. A. W. Moore, O.B.E., R.A.M.C. (T.F.); Lt.-Col. P. S. Lelean, C.B., R.A.M.C. *4th Class:* Maj. L. A. Avery, D.S.O., R.A.M.C. (T.F.); Capt. A. L. Sheppard, I.M.S.

French.

Légion d'Honneur.—Officier: Col. J. C. B. Statham, C.M.G., C.B.E., late R.A.M.C. *Chevalier:* Lt.-Col. R. de L. Harwood, C.A.M.C.

Croix de Guerre.—Capt. (acting Maj.) J. C. Sproule, R.A.M.C.

Ordre du Mérite Agricole.—Chevalier: Capt. J. Clayton, R.A.M.C. (T.F.); Capt. J. D. Davidson, R.A.M.C. (T.F.); J. Golding, D.S.O., R.A.M.C. (T.F.).

Hellenic.

Order of the Redeemer.—Chevalier: Capt. W. L. Murphy, R.A.M.C. (T.F.). *Officer:* Surg.-Cdr. R. W. B. Hall, R.N.

Greek Medal for Military Merit.—3rd Class: Temp. Capt. (acting Maj.) P. M. Heath, R.A.M.C.; Temp. Capt. (acting Maj.) R. Scott, R.A.M.C.; Capt. H. E. Smith, R.A.M.C. (T.F.); Temp. Maj. J. H. Spencer, R.A.M.C.; Lt.-Col. A. D. Waring, R.A.M.C. *4th Class:* Temp. Capt. R. E. G. Gray, R.A.M.C.; Capt. J. Ratcliffe, R.A.M.C. (S.R.); Temp. Capt. C. S. Thomson, R.A.M.C.

Hedjaz.

Order of El Nahda.—3rd Class: Capt. and Bt. Maj. (acting Maj.) W. E. Marshall, M.C., R.A.M.C.

Persian.

Order of the Lion and Sun.—3rd Class: Capt. C. J. Stocker, M.C., I.M.S.

Portuguese.

Military Order of Avis.—Commander: Temp. Lt.-Col. G. H. Usmar, O.B.E., S. Afr. M.C. *Chevalier:* Capt. F. B. Smith, M.C., R.A.M.C. (T.F.).

Serbian.

Order of St. Sava.—5th Class: Lt. (temp. Capt.) A. G. Harsant, R.A.M.C. (S.R.); Temp. Capt. (acting Maj.) W. H. Peacock, R.A.M.C.; Capt. J. Steedman, R.A.M.C. (T.F.); Temp. Capt. (acting Maj.) N. B. Stewart, R.A.M.C.; Temp. Capt. (acting Maj.) W. H. Welsh, R.A.M.C.

Gold Medal for Zealous Service.—Capt. P. H. Mitchiner, R.A.M.C. (T.F.).

Siamese.

Order of the White Elephant.—3rd Class: Capt. and Bt. Maj. R. C. Dun, R.A.M.C. (T.F.); Lt.-Col. R. de L. Harwood, C.A.M.C.; Maj. (acting Lt.-Col.) R. C. Wilson, R.A.M.C.; Lt.-Col. and Bt. Col. Sir E. S. Worthington, K.C.V.O., C.B. *4th Class:* Capt. J. H. A. Paquette, C.A.M.C.

Order of the Crown of Siam.—2nd Class: Lt.-Col. H. P. W. Barrow, C.M.G., O.B.E., D.S.O., R.A.M.C.

THE Lord Mayor will preside at a meeting at the Mansion House on Thursday next, Feb. 5th, at 3.30 P.M., when the Society for the Prevention of Venereal Disease will lay the importance of immediate self-disinfection as a means of preventing the spread of venereal diseases before the City of London. The speakers will include the Lord Mayor, Lord Willoughby de Broke, Lord Riddell, Sir William Arbuthnot Lane, Sir James Crichton-Browne, Sir Ray Lankester, Sir Archdall Reid, and Sir Arthur Sloggett.

THE LATE MR. G. R. GREEN.—George Richard Green, M.R.C.P. Edin. and M.R.C.S. Eng., who died of pneumonia at Portmadoc on Jan. 7th at the age of 61, was educated at Guy's Hospital, qualifying in 1882. Formerly he practised at Ripon and was medical officer of health to the urban district council, honorary surgeon to the cottage hospital, and medical officer to the training college in that city. During the war he had been commandant of the Portmadoc and Criccieth V.A.D.

Correspondence.

"Audi alteram partem."

HIGHER QUALIFICATION IN OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—In connexion with the interesting article in your issue of Dec. 6th last anent a higher qualification in ophthalmology, I may state that the Royal Faculty of Physicians and Surgeons of Glasgow has for very many years included ophthalmology as one of the subjects of examination for its Fellowship, and at present there is a proposal even further to strengthen the position of ophthalmology as a subject of special examination. Many years ago in the *British Medical Journal* I called attention to what seemed to me a suitable course for ophthalmic surgeons; and more recently, through the great courtesy of the Edinburgh Pathological Club, I have had an opportunity of re-stating these views, and also made a communication on the subject to the *Ophthalmic Review* in 1916. It has always seemed to me an extraordinary thing that some ophthalmic hospitals should require the senior members of their staff to have spent a great deal of time in the study of anatomy and physiology, which subjects they will forget within a year of their having passed the examination, for the simple reason that they do not form part of their everyday work, and at the same time appoint men on the staff of such hospitals who have never been within the doors of a physical laboratory. Unless a man has a fair working knowledge of trigonometry, of logarithmic arithmetic, and of plane rectangular coördinates, he cannot even read the best books on ophthalmic work. These subjects, no doubt, only concern one part, but a very important part, of ophthalmic practice. In addition to the time passed in a physical laboratory, there should be a considerable amount of time spent in a bacteriological laboratory; for, as I pointed out so far back as 1891, nobody should operate on an eye, except in extreme emergency, without a thorough-going bacteriological investigation of the conjunctiva.—I am, Sir, yours faithfully,

FREELAND FERGUS,
President, Royal Faculty of Physicians and Surgeons,
Jan. 15th, 1920. Glasgow.

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—The attention of the Society for the Prevention of Venereal Disease has been drawn to a statement recently issued by the general secretary of the National Council for Combating Venereal Disease, which has been published broadcast. The National Council have a perfect right to their own opinions, although most experienced persons will not agree that education as to cause and result of disease, together with treatment, has ever been efficacious in stopping disease, unless accompanied by instructions in regard to prevention.

The National Council, again, insist on local cleanliness, but forget to mention that such local cleanliness is best obtained by the use of antiseptics. They again bring forward the old Australian statistics as evidence that immediate self-disinfection is not efficient. The high incidence of venereal disease among the Australian Forces in the field was due to the fact that only 10 per cent. of the men were supplied with the proper disinfectants and instructions for their use. Wherever immediate self-disinfection was properly applied, venereal disease was practically eliminated.

The National Council proceed to state that the almost unanimous majority of medical officers of health and clinic officers throughout the country are opposed to immediate self-disinfection. Our Grand Committee contains the names of medical officers of health of at least as high standing as those associated with the National Council.

In the next sentence of their statement the National Council compare unfavourably the experience of members of our Society with those of the National Council in regard to prevention and treatment of venereal disease. This is an unfortunate statement for the National Council to have made. We suggest that it would be advisable for the National Council to study the list of our Grand Committee with a little more care, before venturing to suggest that the weight of experienced medical opinion is against us.

The final sentence of the National Council's statement is as incorrect as all the others, for our Society has repeatedly affirmed the importance of other methods of prevention of venereal disease, besides immediate self-disinfection, but has pointed out that moral education takes a generation before its effects are produced, and that in the meantime something must be done at once to check the spread of these diseases.

We are, Sir, yours faithfully,

(Signed) WILLOUGHBY DE BROKE (President),
JAMES CRICHTON-BROWNE, M.D., F.R.S.,
H. BRYAN DONKIN, M.D., F.R.C.P.,
W. ARBUTHNOT LANE, Bt., C.B., M.S.,
ROBERT A. LYSTER, M.D., M.O.H.,
J. Y. W. MACALISTER,
F. W. MOTT, K.B.E., M.D., F.R.S.,
ERIC PRITCHARD, M.D., M.R.C.P.,
G. ARCHDALL REID, K.B.E., F.R.S.E.,
HUMPHRY ROLLESTON, K.C.B., M.D.,
C. W. SALEEBY, M.D., F.R.S.E.,
ARTHUR SLOGGETT, K.C.B., K.C.M.G.,
K.C.V.O., D.S.O.,
J. H. SEQUEIRA, M.D., F.R.C.P., F.R.C.S.,
R. M. WILSON, M.B., Ch.B.,
H. WANSEY BAYLY, *M.C.*, M.R.C.S.
Jan. 26th, 1920. (Hon. Sec.).

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—Certain characteristics of the present epidemic of scarlet fever again raise doubts whether two separate forms of the disease are not confused under a common designation. During the past few months two facts have been noticeable with regard to cases admitted as scarlet fever to the London Fever Hospital. First, the unusual number of relapses in hospital; and second, the number of patients giving a history of what appears to have been a previous undoubted attack of the disease. Most of the cases admitted have been of a benign type and complications have been the exception, although peeled tongue and desquamation have been the rule. On the other hand, there have been a few cases of undoubted septic or malignant character.

One may say at once that none of the milder cases alluded to are German measles; of this I am certain. In these mild cases the rashes have been scarlatiniform from the beginning, and indistinguishable from those which we consider characteristic of scarlet fever, although perhaps more fugitive than usual. Vomiting as an initial symptom has often been absent, pyrexia slight or moderate, the faucial inflammation not severe, tonsillar exudate often absent, and submaxillary adenitis uncommon. Albuminuria, too, has been exceptional. Rather a striking feature has been the unusual number of patients with moderate enlargement of the glands of the posterior triangles of the neck, the axillæ, and the groins.

It will at once be recognised that although the seasonal incidence is different and the tongue has peeled, the clinical characteristics of these mild cases closely conform to those described by Dukes as characteristic of his Fourth Disease—a disease which he considers distinct from scarlet fever, on the one hand, and from German measles on the other. It is, however, plain that these mild cases show a much greater affinity to true scarlet fever than they do to German measles, and the belief has gradually grown up in my own mind that we are dealing with a disease which is related to scarlet fever in the same way that paratyphoid is related to typhoid. Until bacteriological advance renders it possible, such a contention remains a mere hypothesis, but clinical observation of the types of case at present admitted to our scarlet fever wards has led me to suspect strongly that there are two types of scarlet fever, and that they are not mutually protective. It will be interesting to hear what has been the experience of others who have had to deal with the present outbreak. I am, Sir, yours faithfully,

Devonshire-place, W., Jan. 24th, 1920. CHARLES R. BOX.

REINFECTION IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Doubtless all are in sympathy with Dr. Batty Shaw in doing the utmost for the liberty and comfort of the consumptive, but all cannot agree with him in basing a prejudice against the theory of reinfection on such sympathy. Dr. Shaw admits (THE LANCET, Jan. 24th, p. 180) that "it remains a fact that children are universally infected by the tubercle bacillus of the human form." If, then, the sources of infection are so abundant, and if infection is so common that all are infected in childhood, by what new law or new circumstance does reinfection become excluded? Unless a new factor of immense and far-reaching power can be shown to exist, is it not unreasonable to exclude reinfection as of ordinary and frequent occurrence? Nor does the theory or fact of auto-infection affect the question; for if the supposed immunising effect of one focus of infection does not protect from reinfection by bacilli from that focus, how can such supposed immunising effect protect from reinfection from without?

It is difficult to understand the pessimism of the hour, a pessimism that loosens our hold on ascertained facts, in order to launch us once again into a sea of uncertainties. May we not suppose that Dr. Shaw himself recommends patients for sanatorium treatment, warns them against spreading infection, and even warns relations? We all know that by these measures we are doing good, and not harm. Until reinfection is disproved (and the onus of proof rests with the opponents of the theory), surely notification must continue, and the elementary precautions usually enjoined must be followed. At the same time, such aids as the adoption of anti-catarrhal measures will be welcomed. When will the purifying of the atmosphere of our cities become a practical question with our public health authorities?

I am, Sir, yours faithfully,

London, Jan. 26th, 1920. R. M. FENN.

THE MEANING OF TACHYCARDIA.

To the Editor of THE LANCET.

SIR,—I have read with interest the article by Dr. McNair Wilson under the above heading in THE LANCET of Jan. 17th. Tachycardia is a comprehensive term, and the writer admittedly does not deal with the condition in all its aspects or with its origin from all known causes, but with the instability of heart which is frequently observed after various enfeebling ailments and some enfeebling circumstances not infective.

It is not my intention at the moment to question the persistence or otherwise of the toxins to which some such enfeeblements may be assumed to be due, but to welcome the evidence afforded by this article of a recognition of the importance of the neural factor in such conditions. It is not long since some who regarded themselves as specially enlightened exponents of cardiology would have treated the matter with little reference to the innervation of the heart. The "excitatory system" would have been found fully capable of accounting for all the phenomena in question irrespective of any nervous endowment, which was, indeed, usually denied it because such had not been demonstrated. Even the sinu-auricular node, however, —the "pace-maker"—has now been shown to be fully innervated, although modesty forbids my indicating the reference more particularly! There is also some experimental evidence that the "pace-maker" is preponderantly endowed by the right and the auriculo-ventricular node and bundle by the left pneumo-gastric nerve and, of course, also by the sympathetic.

But there is another point which also interests me in this article, inasmuch as it appears to be regarded as novel—namely, the view that cardiac acceleration following vagus depression, irritability, or atony is compensatory. Reference is, certainly, made to a recent contribution of Professor F. A. Bainbridge, in which it is remarked "that acceleration of the pulse can compensate for lessened contractile power in maintaining the output of the heart per minute," a conclusion, I presume, which Professor Bainbridge in no way desires to be regarded as original or novel. I think the impression must be general that this is a venerable commonplace of physiology. In any case it has for long and frequently been impressed on the clinician, and putting aside the less acute enfeeblements with which Dr. Wilson deals, is observed in a very demonstrable manner in the more serious phenomena associated with cardiac failure in angina pectoris. In this connexion I have myself termed the state which usually follows the shock of cardiac pain (if I may be permitted to regard the pain as cardiac) as a "rescuing augmentation and acceleration of the heart's beat."[1] Indeed, the now hoary and usually beneficent experience of the acceleration produced by the nitrites in such cases declares the compensatory nature of tachycardia under these circumstances.

In the cases to which Dr. Wilson refers he will, however, agree that the sooner tachycardia ceases the better will it be for the patient, and that the most efficient remedies are not so much drugs as the posture and relief from activity which reduce heart rate—namely, resting and the employment of such means as will remove the cardiac enfeeblement of which tachycardia is the expression and the rescuing effort.

I am, Sir, yours faithfully,

ALEXANDER BLACKHALL-MORISON.

London, Jan. 19th, 1920.

A PROFESSOR OF MILITARY MEDICAL HISTORY FOR OUR INDIAN WARS.

To the Editor of THE LANCET.

SIR,—We have had during our tenure of India unceasing wars all over that country, and in each case much loss of life has occurred. If one tries to trace out the history of the Indian Medical Service and the part they took with the British Army Medical Service it is exceedingly difficult to find any historic books from which officers could learn to benefit by our failures and obtain fuller instructions when such campaigns recur.

I would propose that a medical officer of the Indian Army be appointed as a "Historian of the Indian Medical Service" in peace and war, and of the British troops who fought side by side with them in the endless Indian wars. Such an officer would be a member of the headquarters staff of the army in India, and would deliver each year a course of instruction on medical war history in various parts of the continent of India.

I am, Sir, yours faithfully,

GEORGE J. H. EVATT, Major-General,

British Army Medical Staff, retired.

Junior United Service Club, Jan. 16th, 1920.

THE VERMIN REPRESSION SOCIETY.

To the Editor of THE LANCET.

SIR,—I note with very great satisfaction that in your issue of Jan. 17th you give prominence to the fact that the Government representative, at the Vermin Repression Society's dinner, pointed out that the Vermin Repression Society was only at the beginning of its work. As the society is just about to be incorporated under special licence of the Board of Trade and it has correspondents in Burmah, Egypt, India, and Australia, and also it has the flourishing section in Bristol, I think the time will not be far distant when its original founder and honorary organiser, Lieutenant Alfred E. Moore, the British Emil Zuschlag, will be caricatured as "The Modern Rat Robespierre"; for it cannot be too well known that it is owing to Lieutenant Moore, who initiated the movement against the rat in 1907, and who has never ceased, in season and out of season, to organise against the rat, that the present success is due, and that he refuses to accept a

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[1] The Nervous System and Visceral Diseases, Edin., 1899, p. 98.

British rat law as being the culminating effort of his work, for he confided in me, after the dinner, that he would not be satisfied until the campaign against rats was properly organised on an international basis, as he believes that the whole future of medicine is bound up in verminological research and adequate vermin repression as a bulwark against disease.

I am, Sir, yours faithfully,
H. MILLS,
St. Margarets-on-Thames, Jan. 20th, 1920. Captain.

CHESHIRE LOCAL MEDICAL AND PANEL COMMITTEE.

[*To the Editor of* THE LANCET.

SIR,—I am directed by my Committee to forward for your information the following resolution, passed unanimously at a full meeting of my Committee at Crewe, on Saturday last :—

(i.) That this Committee expresses its most emphatic disapproval of the remuneration offered by the Government; and regrets that the I.A.C. thought fit to exercise its authorisation to ask for arbitration when the Government's offer proved to be such a low figure as 11*s*. (ii.) This Committee notes with especial regret that the terms of service for which the remuneration is offered are "the proposed Medical Benefit Regulations, 1920, as published in December last" which regulations (*a*) retain the provision by which the Minister may be at one and the same time the accuser or complainant, and the judge or arbitrator (Regulation 57), the accused having no appeal—a provision which in the opinion of this Committee is contrary to the spirit of English law; and (*b*) introduce a new provision [16 (c)], detrimental to the transfer of practices, which greatly diminishes their capital value; and (*c*) impose a new obligation on practitioners [First Schedule, Part 1, 5 (*c*) and Model Allocation Scheme 5 (i.) and (ii.)], requiring them to attend any insured person on the list of another doctor in an accident or sudden emergency if that doctor be not at the moment available, for a fee to be deducted from that doctor's remuneration.

With regard to (*b*) the Committee remarks that at the death of a doctor it is too often found that the goodwill of the practice is the chief and often the only asset which he has to leave to his widow and children, and that by this regulation this asset is, without compensation, greatly diminished, or it may be abolished. With regard to (*c*) a trying and uncertain and entirely new duty is imposed on a panel doctor *in the shape of a legal obligation*. When has it happened, the Committee asks, in the past that doctors have ignored the claims of urgent illness? They have voluntarily dealt with such cases as they occurred on their merits. They resent, however, being *legally obliged* to attend all and any who may demand their services on a plea of urgency; and they note that the reality or otherwise of the urgency is left to the decision of the patient.

I am, Sir, yours faithfully,
LIONEL JAS. PICTON,
Jan. 21st, 1920. Hon. Secretary.

CAUSE OF DEATH CERTIFICATION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Jan. 10th, p. 106, it is stated that a doctor is "prohibited by statute from making any charge in respect of a certificate of the cause of death." This is hardly so. He is entitled to make a charge to the relatives or executors. The point is that he cannot be paid *out of public funds*. The doctor can be fined 40*s*. or get seven years if he *refuses* to issue a certificate of the cause, always provided that he can refuse if he has reasonable grounds for refusing. If there be any doubt about a fee, then the doctor can inspect the dead body and charge both fees for visit and inspection.

Those wishing to obtain very full information should obtain the report of the Select Committee, House of Commons, on Death Certification of August and September, 1893. I gave a large amount of information before this Committee. May I suggest that each medical society shall pass a resolution instructing all its members to inspect the body before certifying? It is full time we adopted a uniform system—that is, if doctors can adopt any system of uniformity.

I am, Sir, yours faithfully,
Liverpool, Jan. 19th, 1920. R. R. RENTOUL.

⁂ Dr. Rentoul's suggestion is not new, and the advantages and objections are well known.—ED. L.

DISCONTENT IN THE INDIAN MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 29th, 1919, the Secretary for War is reported to have replied to Sir Watson Cheyne in the House of Commons, concerning grievances of temporary R.A.M.C. officers, that the pay of these officers has been raised to Rs.750 to Rs.800 per mensem. As this may easily create an impression that medical officers in India are rolling in wealth, may I point out that Special Reservists are only in receipt of Rs.475 per mensem, plus Rs.69–12 for war bonus, a difference of approximately £20 a month.

I am, Sir, yours faithfully,
Jan. 1st, 1920. SPECIAL RESERVIST.

THE JUSTIFIABILITY OF THERAPEUTIC LYING.

To the Editor of THE LANCET.

SIR,—The controversy on the justifiability of therapeutic lying raises a subject of the utmost importance. It involves the question whether mere ritual or ceremony is ever justifiable, when it is intended to deceive or to impress. Whether, also, such cures are good or justified when no effort is made by the patient and nothing is given to dethrone his egoism. Whether humbug is ever justified. Until the public knows the difference between functional and organic disease, and how that the one is frequently superimposed upon the other, such "cures" tend to obscure knowledge and to impede the progress of truth, and, moreover, charlatanism and quackery will flourish. The friends and relatives of Dr. Hildred Carlill's patient are probably deceived. As it happens the patient fell into good hands, but he might as easily have fallen into hands less scrupulous and less honourable, with a similar result and a similar obscuring of knowledge.

One pauses, however, when one reads that "He spat on the ground, and made clay of the spittle and anointed his eyes with the clay and said unto him, Go, wash in the pool of Siloam. He went away therefore and washed and came seeing." But in two other accounts, and those earlier and probably more strictly literal, no ceremony is recorded and the blind man was spoken to thus: "Go thy way, thy faith hath made thee whole; and straightway he received his sight." It may be that the cure of functional disease is more the work of the priest than of the physician, but the priest must be one moved by no unworthy arts of gain, and unnecessary ritual is perhaps better avoided. We know that cures are effected by suggestion of many kinds;—"suggestion" in inverted commas, the eloquence of a quack, vibrations, electric sparks, the reputation of a herbalist, Christian Science, a bottle of medicine three times a day, and relics.

It is pathetic with what earnestness a pilgrim to Lourdes will endeavour to persuade one that the cures effected there are genuine. We *know* that they are genuine, but suggestion will not restore a lost limb, or a nerve tract that has been destroyed, nor cause regeneration of renal epithelium, nor give vitamines to protoplasm; and though the first of these is obvious to the layman the others are not, and if he is bewildered and deceived by our profession how will the truth about disease ever get disseminated? If Dr. Carlill explained the whole thing to the relatives perhaps comparatively little harm was done; but what would be the effect if the patient read the article and the letters on his case? There is no alliance between his moral strength and his recovery. What, in any case, will his future be? Will other devils worse than the first come to occupy the empty chamber? If so, it may well be that a millstone would be preferable to the bone disc about his neck. Elizabeth Barrett was left with no empty chamber. Robert Browning more than filled it; and the blind man had his faith. While we might seek to emulate the atmosphere of the old Æsculapian temples for its curative effect, we would not descend to the crude charlatanism of their ceremonies nor re-introduce the "cure by sympathy" as advocated by Sir Kenelm Digby.

Possibly if the whole world knew what is meant by functional disease and could recognise it, a great deal of, if not all, truly functional disease would tend automatically to disappear.

I am, Sir, yours faithfully,

London, Jan. 19th, 1920. F. READY.

THE LATE SIR VICTOR HORSLEY.

To the Editor of THE LANCET.

SIR,—The memory of this great surgeon-investigator deserves plenty of contemporary comment, as we are reminded by Dr. Giovanni's book, to which you alluded last week, as well as by your review of Mr. Stephen Paget's biography of Horsley. For instance, it will be important for various future students to know that he, the typical Radical, was the complete opposite of his graceful biographer. Would it indeed have improved Horsley's example, as Mr. Paget thinks, for him to have been a public school man? Might it not have hampered his fine initiative during the all too few youthful years of brisk brain? A sometime fellow resident of his has described him to me sitting in the house surgeons' room holding a chloroformed handkerchief to his face and counting his pulse; gradually sinking back in the chair unconscious; coming to again and resuming the record. I for one cannot fancy the public school boy bringing himself to this; the public school boy would have a different notion of public behaviour. However, that common and well-seeming product might find a trifle or two to put in the opposite scale. I remember hearing Horsley speak at a big women's suffragist meeting in Hyde Park. The particular wagon he was on carried the "University platform," and at this, the intellectual hub of the concourse, the weight of advocacy seemed to be sustained by men. However, when it wanted only a few minutes to the ringing of the bell and putting of the resolution, the chairwoman asked him in a superficially careless tone, "Shall I go on a bit now?" A more conventional man, and the modern type of doctor, would have let her; Horsley didn't. The public school might have saved other people's feelings a little, but then even Horsley's stride was not too big to be clogged somewhat by a clerical-authoritarian régime in his impressionable years. For, though wonderfully productive on his plane, he was not the sovereign investigator. He could not "fancy the fabric," could not make big generalisations. His ascent to knowledge was always by way of the staircase, as the French say, although it must be admitted he went up it three steps at a time. He had always more of an eye to the practical, more of the faculty of application of principles, than has your true diviner. In his work, in short, he was limited to Baconian induction, which some eminent contemporaries are always wrongly indicating as the only way of medical investigation.

Where he indeed *may* have lost was by not taking out a university arts course, instead of going straight to hospital, 45 years ago. Even a pass B.A. would have removed his sciolism. Now that is a cheeky word to use in connexion with such a man, and I would not be misunderstood. "All these reveries and studies have need of so much time and thought that it is almost certain a man cannot be a successful doctor, or engineer, or Cabinet Minister, and have a culture good enough to escape the mockery of the ragged art student who comes of an evening sometimes to borrow a half sovereign"—says Mr. Yeats. Remember that to studies and reveries enough Horsley joined brilliant action. If he had had more humanism he would have been less cocksure. A sub-alcoholic combatant officer who had served with him in the East told me that Horsley gave out you couldn't get heat-stroke if you didn't drink. "Then," he added, "he got it himself." Alas, that characteristic and lamentable death robbed us of one who might, possibly, have done giant's work in the slow but sure, post-war revival of truth.

I am, Sir, yours faithfully,

Jan. 20th, 1920. CADUCEUS.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following are the results of the Triple Qualification Examination:—

SECOND EXAMINATION.

Gerrit Johannes Lamprecht, Rachel Caplan, Oliver Hugh Dickinson Oliver, Kaja Magdon Ismail, James M'Nie Campbell, Joseph Alfred Henry Sykes, James Maxton M'Innes, Gujar Robert Falcon, Esias Andries Nortje, and James Readdie.

THIRD EXAMINATION.

Pauline Figdor, Gwilym ap Vychan Jones, John Hagard, John Matthew, Duncan Reid Nicol, Arthur Cuthbertson, Cedric Holmes, and Sayed Ghaleb.

FINAL EXAMINATION.

Lizzie Robertson Clark, Joseph Campbell, James Charles Meek, Alexander Strang, Walter Frederick Swanton Webb, Frederick William Thompson, Evert Frederick Birkenstock, Janet Adeline Agnes Sang, Thomas Blaney, Robert Carl Fechter, and Thomas Wyper Stewart.

Mr. J. B. Joel and Mr. S. B. Joel have made the magnificent gift of £20,000 for the endowment of a chair of Physics in the University of London. The chair will be tenable at the Middlesex Hospital Medical School.

THE IMPERIAL WAR MUSEUM.—The exhibition of the nation's war paintings, which was announced to close this week, will be open until Feb. 7th, owing to the sustained public interest in the pictures. (See THE LANCET, Jan. 24th, p. 215.)

Monsieur Michailo Gavrilovitch, the new Serbian Minister, has become president of the Serbian Red Cross Society in Great Britain, in succession to Yovan Yovanovitch, who has returned to Serbia.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, PLAISTOW.—Lady Helen Seymour is organising a grand bazaar to be held at Claridge's Hotel on Thursday, April 15th, in aid of the matron's special fund for building a new home for the nurses. It is earnestly hoped that it will be a great success. An urgent appeal is issued to every doctor who has at some time been attached to the hospital to send a trifle for the hospital stall. However small, it will be gratefully acknowledged by the matron.

University College Hospital being somewhat small for the large schemes in contemplation there, the committee have recently acquired a site in the immediate vicinity of the hospital on which to build a nursing home, with a view to liberating the part of the hospital at present occupied by nurses for the purpose of providing additional beds for patients.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—The medical and surgical units at University College Hospital Medical School have now been instituted and are in full working order. The director of the medical unit is Dr. T. R. Elliott, C.B.E., D.S.O., F.R.S., physician to the hospital. Dr. J. W. McNee, D.S.O., recently assistant to the Regius professor of medicine and to the professor of pathology at Glasgow, has been appointed first assistant and deputy to the director. Dr. F. M. R. Walshe has been appointed second assistant to the director to control neurological teaching and research, and also to take charge of the department at University College Hospital of electro-therapeutics and massage. The director of the surgical unit is Mr. C. C. Choyce, C.M.G., C.B.E., and he has as his first assistant Mr. E. K. Martin, and as his second assistant Mr. F. J. F. Barrington. The directors of the units are responsible for the general arrangement of systematic teaching on the principles of medicine and surgery in both hospital and school. The instruction of junior students in physical signs and elementary laboratory methods and the systematic demonstrations and lectures for senior students are to be organised by them, although the teaching in these courses is in certain cases given by other members of the staff. Every student is to take duty during his first year for two months' clerking and two months' dressing with the medical and surgical units respectively. These terms of clerking and dressing are intended to follow as far as possible the four months' term of duty with other members of the staff. Thus every student will in due course pass through one or other unit. During his course of two months' duty under the director of the medical unit the student will be attached for clinical clerking to some of the special departments, such as the cardiographic department under Dr. Thomas Lewis, F.R.S. Arrangements have been made at the medical school by which the directors of the units and their assistants have been furnished with ample accommodation and facilities for research work in the Graham Laboratories of Pathology.

Under the auspices of the Fellowship of Medicine lectures and practical work in physics for the Cambridge diploma in radiology will be given at University College Hospital, London, commencing Tuesday, Feb. 3rd, at 5.30 P.M. Applications should be addressed to the hospital.

No. 20 General Hospital, B.E.F.—A dinner of the officers attached to this hospital during the campaign in France, at which Major-General Guise Moores, C.B., will preside, will be held in London on March 13th. Any who are desirous of being present are asked to communicate with Mr. H. Drinkwater, at 7, Cavendish-place, London, W.

Scottish Poor-law Medical Officers' Association.—The annual meeting of the association is being held to-day (Friday) at the St. Enoch Station Hotel, Glasgow. The report for the year 1919 states that the superannuation for all employees of local authorities has been under consideration. Dr. W. Bryce and Dr. W. L. Muir have been nominated to serve on the consultative council to advise the Scottish Board of Health.

The Federation of Medical and Allied Societies.—At the last meeting of the executive of the federation it was decided to hold a dinner at the Café Royal, Regent-street, London, at 7.30 P.M., on Wednesday, Feb. 25th, when the guest of honour will be Sir Bertrand Dawson, whose elevation to the peerage has recently been announced. Tickets are 35*s*. inclusive of wines, and some who intend to be present have intimated their intention to bring guests. Saturday, Feb. 14th, is the last day on which it will be possible to receive applications for tickets, which should be made to Dr. N. Howard Mummery, general secretary, at 5, Vere-street, Cavendish-square, London, W. 1.

The British Dental Association.—The new headquarters of the British Dental Association were opened by Dr. Addison, the Minister of Health, at 23, Russell-square, London, W.C., on Jan. 23rd. Sir George Newman, Chief Medical Officer of the Ministry of Health, was present to represent the University of London, and a distinguished attendance included Sir George Makins, President of the Royal College of Surgeons of England; Sir Humphry Rolleston, President of the Royal Society of Medicine; Surgeon Rear-Admiral Sir R. Hill, Director-General of the Medical Department of the Royal Navy; and Major-General Sir G. Stanistreet, Deputy Director, Army Medical Service. Among those who were unavoidably absent and who sent letters of regret and support were Sir Donald MacAlister, Sir Clifford Allbutt, and Sir John Goodwin.

Mr. Montagu F. Hopson, President of the Association, who presided, said that the accommodation in Hanover-square, having proved too small for the requirements of the Association, the new premises had been adapted at a present cost of £4000, the charge being made out of funds held in reserve for the purpose. A generous donation had been received from the mother branch and other donations from individual members. He hoped that the new home would prove worthy of the work which the Association would be called upon to do in the near future. The Association was founded just after the passing of the Dentist Act of 1878, and had now a membership of 3000—that was to say, three-fifths of those qualified to practise dental surgery. The Association might therefore be considered as truly representative of British dentistry. Dr. Addison, in formally declaring the new headquarters open, said that dentistry had not yet come into its kingdom, and he was glad to see that the Association had been able to find the means necessary to equip itself with better headquarters. He hoped, too, that there would be only one association, for it was the plague of some professions that they had too many. The report of the Dentist Act Committee had indicated what it was necessary to do as a minimum in the interests of public health, but as developments went on it would be found that there would be an insufficient supply of skilled men. The dentistry training was perhaps more expensive than the medical training. It ought to come within the reach of a larger number of people, and he was glad to see that a reduction in the period of training had been recommended. Medical research had shown that the health of the nation's children was being undermined in consequence of defective teeth. In the proposals that would be put before the country by the Government in due course it was essential that everyone should understand that the organisation and trained personnel for an adequate service would take many years to provide. In any proper organisation, too, there should be community of service, and the time was rapidly coming to an end when in respect to health services medical men, dentists, nurses, midwives, and others would be taken separately. The aim should be a coördinated service working in common centres. Mr. Norman G. Bennett proposed a vote of thanks to Dr. Addison, which was seconded by Major W. Guy, of Edinburgh, and carried with acclamation. Mr. J. A. Woods proposed a vote of thanks to the distinguished visitors, which was replied to by Sir George Makins, and the proceedings terminated.

Central Midwives Board.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Jan. 22nd, with Sir Francis H. Champneys in the chair.—A letter was considered from the secretary of the County Councils Association asking the opinion of the Board as to the practicability of restricting the liability of local supervising authorities under Section 14 of the Midwives Act, 1918, by the imposition of a time limit or otherwise. The Board directed that the secretary of the County Councils Association be informed that the Board does not see its way to advise what limits should be placed on the liability of local supervising authorities under Section 14 of the Midwives Act, 1918, but thinks that each case must be considered on its merits as to when the emergency ceases.

A special meeting was held on the same date, when two midwives were struck off the roll, the following charges amongst others having been brought forward:—

> Being in attendance at a confinement and the patient suffering from serious rupture of the perineum and offensive discharge, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rules E. 20 and 21 (3); she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14, and the child having died before the attendance of a registered medical practitioner, the midwife neglected to notify the local supervising authority thereof, as prescribed by Rule E. 22 (1) (b). A child suffering from inflammation of and discharge from the eyes and continuing so to suffer, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5); medical aid having been sought for the child, she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a).

Hospital Conditions in Leeds.—The stocktaking in charitable institutions, and especially in hospitals, has this year been followed by a feeling of dismay. The plight of Leeds is really that of all provincial hospitals, as is revealed by correspondents in The Lancet from Bristol, Birmingham, and other centres. Leeds suffers chiefly from a lack of funds, the deficit on each year's working amounting to about £25,820, whilst the bank overdraft reaches £38,591. This year Mr. Joseph Watson prevented disaster with a magnificent gift of £50,000, but even this is but a temporary help. Further schemes for the raising of the yearly income are afoot. The number of beds at the disposal of the infirmary authorities is 594, but some are occupied by special military cases, and 64 beds are kept for pensioners; this causes a waiting list of several hundred civilian patients, but there are signs that this state of affairs will be remedied in the near future. The aggregation of all kinds of cases at the General Infirmary at Leeds is ideal for students and teachers alike. In provincial cities, where more than one institution exists, much may be said for coöperation and central control. Buying on a large scale can command an easier market; efficient administration can be afforded; staff personnel kept at a higher level; whilst funds and effort in collecting them are not frittered away, thus giving the subscribing public a better assurance that their money is being spent to the highest advantage. In Leeds, where the workpeople subscribe to a common hospital fund, much trouble and annoyance associated with the distribution of the moneys thereof would be done away with by centralisation of control.

Norfolk and Norwich Hospital.—The quarterly meeting of the governors of the Norfolk and Norwich Hospital was held on Jan. 10th. The board of management reported that during the past quarter 10 military cases, 172 discharged soldiers, and 666 civilians, a total of 848, had been admitted to the hospital, the number in the corresponding quarter of the previous year having been 750. The average daily number of in-patients was 277, against 304 in the corresponding quarter of 1918; 587 operations had been performed, against 437; 497 new cases were treated in the out-patient department, against 393; and 1771 accidents and casualties had been treated, as against 1231 in 1918. It was also pointed out that whereas in 1913 the total number of in-patients was 2667 and the average number of patients resident daily was 180, in 1918 the total of in-patients was 4242 and the daily average 328, yet the daily cost per in-patient had increased from £4 13*s*. to £8 13*s*. 6*d*. In 1913 the annual subscriptions amounted to £3485, and had only increased in 1918 to £4010. On the other hand, the expenditure had increased from £13,650 to £36,653. These figures were sufficient to show the good work done by the hospital and the urgent need of a great increase in the annual subscriptions. The special appeal fund for the establishment of an orthopædic department and for other extensions had been augmented during the quarter by £1000, and now amounted to over £21,000. There were two interesting contributions made during the quarter, the first being a donation of £100 from the King and the second was a sum of £229, the result of the takings on Dec. 12th last at all the cinema theatres in Norwich, the proprietors of which had generously presented the receipts for that day to the special fund. The board is appealing for a further sum of from £16,000 to £20,000.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BURY, J. S., M.D. Lond., has been appointed General Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 5.

DAVISON, GLEN., M.D., Visiting Pediatric Physician to the Maternity Hospital, Newcastle-upon-Tyne.

GOULDEN, CHARLES, M.D., M.Ch., F.R.C.S., Assistant Ophthalmic Surgeon to the London Hospital, Whitechapel.

MACKENNA, R. W., B.Ch., M.D., Honorary Dermatologist to the Liverpool Royal Infirmary.

Certifying Surgeons under the Factory and Workshop Acts: BARBER, A., M.R.C.S., L.R.C.P. Lond. (Shanklin), SCOTT, C. T., B.C. Camb. (Market Harborough), ST. JOHN, W. St. A., M.R.C.S., L.R.C.P. Lond. (Derby).

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—H.S. £200.
Bedford County Hospital.—H.S. and H.P. £175 and £150 respectively.
Belgrave Hospital for Children, Clapham-road, S.W.—Asst. P.
Bethlem Royal Hospital, Lambeth-road, S.E.—Sen. Res. Asst. P. £600.
Birmingham City Education Committee.—Asst. Sch. M.O. £450.
Bristol, City and County of.—Asst. Tuberc. O. £450.
Bristol General Hospital.—Senr. R.M.O. £300.
British Guiana.—Asst. M.O. £400.
Camberwell Provident Dispensary, Camberwell Green, S.E.—Four M.O.'s.
Carlisle, Cumberland County Council.—Asst. County M.O. £500.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.
Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Hon. Ophthal. S. and Registrars.
Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.
Chester Royal Infirmary.—H.P. £150.
Chichester, West Sussex County Mental Hospital.—Sec. Asst. M.O. £300.
Croydon General Hospital.—Vacancy on Hon. Med. Staff.
Darlington General Hospital.—H.S. £250.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dover Borough.—M.O.H. £800.
Downpatrick, Down District Asylum.—Two Asst. M.O.'s. £300.
Dreadnought Hospital, Greenwich.—H.S. £50.
Dublin, Dr. Steevens' Hospital.—Gynæcologist.
Dudley, Guest Hospital and Eye Infirmary.—Vacancy on Hon. Surg. Staff. Also two Hon. P.'s.
Durham County Council.—Female Asst. Welfare M.O. £500.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s.
East Suffolk County Education Committee.—Dentist £400.
Edmonton Infirmary, London, N.—Asst. M.O. £1 a day.
Falkland Islands.—Dent. S. £500.
Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.—Sen. M.O.'s. £600 each.
Glamorgan County Council.—Ven. Dis. M.O. £750.
Gloucester City Education Committee.—School Dent. £400.
Gold Coast and Sierra Leone.—Dent. S. £500.
Govan District Asylum, Hawkhead, Cardonald, Glasgow.—Jun. Asst. M.O. £300.
Great Northern Central Hospital, Holloway, London, N.—H.P. £150. Also S. to Out-patients.
Halifax Royal Infirmary.—H.S. £200.
Hospital for Sick Children, Great Ormond-street, London, W.C.—P. to Out-patients.
Ilford Urban District Council.—Asst. M.O.H. £650.
King Edward's Memorial Hospital, Ealing.—Res. M.O. £150.
Kingston-upon-Hull City and County.—Res. M.O. £500.
Leasowe, Cheshire, Hospital for Children.—Junr. M.O. £200.
Leeds General Infirmary.—M.O.'s for Radiol. Dept. and Electro- and Radio-Therap. Dept. £100 each.
Liverpool Infirmary for Children.—H.P. £90.
London County Mental Hospital Service.—Third Asst. M.O. £425.
London Hospital Medical College, Mile End, E.—Lecturer on Neuroses and Psycho-Neuroses.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150. Asst. S. £50.
Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.
Middlesex Hospital, W.—Asst. P.
National Dental Hospital, Great Portland-street, W.—Hon. Anæs.
Newcastle-upon-Tyne and Northumberland Sanatorium for Consumptives, Barrasford, North Tyne.—Med. Supt. £500.
Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.
New Zealand, Auckland Hospital.—Bact. and Path. £900.
Nottingham Children's Hospital.—Female Res. H.S. £200.
Nottingham City Asylum, Mapperley Hill.—Sec. Asst. M.O. £400.
Nottingham City.—Asst. M.O.H. £800.
Nottingham City Education Committee.—Jun. Asst. Sch. M.O. £500.
Nottingham General Hospital.—H.S. £150.
Oldham County Borough.—Asst. M.O. £400.
Oxford, Radcliffe Infirmary and County Hospital.—H.P. Cas. H.S. £200.
Paddington Green Children's Hospital, London, W.—S. to Eye Dept., P. to Skin Dept., and P. to Out-patients.
Plymouth, South Devon and East Cornwall Hospital.—H.P. £14 H.S. £200.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. Hon. P. to Children's Dept., and Clin. Assts.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E. Clin. Assts.
Queen Mary's Hospital for the East-End, Stratford, E.—Hon. Hon. Asst. P.'s, Res. M.O.
Rawalpindi District, N. India, Travelling Caravan Dispensary. Medical Woman. Rs. 500–600 p.m.
Reading, Royal Berkshire Hospital.—Second H.S. £200.
Reeth Union and Rural District Council, Yorkshire.—M.O. £170.
Roxburgh County.—Asst. Tuberc. O. £450.
Royal Free Hospital, Gray's Inn-road, W.C.—Female Res. Obste Asst. and Res. Obstet. H.S. £150 and £50 respectively.
Royal Waterloo Hospital for Children and Women, S.E.—Ho Ophth. S. and Hon. S. to Out-patients.
St. Pancras Borough Council.—Asst. M.O. £450.
Sheffield Royal Hospital.—Asst. Cas. O. £120.
Shrewsbury Borough.—M.O.H. £650.
Straits Settlements and Federated Malay States.—M.O.'s.
University of London, South Kensington.—Examiners.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—S. to Ou patients.
Wakefield, Clayton Hospital.—Jun. H.S. £150.
Whittingham, Preston, Lancs, County Asylum.—Asst. M.O. £300.
Windsor, King Edward VII. Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notic of vacancies for Certifying Surgeons under the Factory an Workshop Acts at Sligo, Bovey Tracey, Woburn Sands, Coup Angus, and at Great Wakering.

Births, Marriages, and Deaths.

BIRTHS.

ATTWOOD.—On Jan. 22nd, at Glenfern, The Avenue, Southampto the wife of Dr. H. C. Attwood, of a daughter.

BURRIDGE.—On Jan. 24th, at Swanage, the wife of Captain Burridge, R.A.M.C.—a son.

O'FARRELL.—On Jan. 6th, at Whalley, Lancs, the wife of Maj W. R. O'Farrell, R.A.M.C., of a daughter.

PALMER.—On Jan. 25th, at Whitfield, Reigate, the wife of A. Palmer, O.B.E., F.R.C.S., of a son.

SMALLEY.—On Dec. 23rd, 1919, at Rawal Pindi, India, the wife Major J. Smalley, I.M.S., of a daughter.

WALL.—On Jan. 24th, at Cavendish-place, W., the wife of Dr. Cec Wall, of a daughter.

MARRIAGES.

ELVERY—BRADFORD.—On Jan. 22nd, in South Kensington, Captai Elvery, D.S.O., M.C., R.A.M.C., to Dorothy, youngest daught of the late J. Bradford and Mrs. Bradford, of Penn Hous Yeovil, Somerset.

GOMPERTZ—WHITFIELD.—On Jan. 22nd, at St. Peter's, Berkhamste Richard Henry Cyril, M.B., B.S. Lond., only son of Lieutenan Colonel B. Gompertz, Indian Army, to Marjorie Hester, elde daughter of E. A. Whitfield, of Stanmore, Herts.

PAM—PRIOR.—On Jan. 26th, at Capetown, Lieut.-Col. Edgar Pan O.B.E., R.E., of Kimpton, Welwyn, Herts, and Johannesbur Transvaal, to Miss Mary Millicent Prior, M.B., B.S. Lond., 3, Dollis Hill-lane, Neasden, N.W. (By cable.)

SHAW—DRAPER.—On Jan. 20th, at St. George's Parish Churc Edinburgh, Major J. J. M. Shaw, M.C., R.A.M.C. (S.R.), to Min daughter of the late David Draper, Falkirk, and Mrs. Wood, Wallhouse, Linlithgowshire.

DEATHS.

CLARE.—On Jan. 24th, at Bournemouth, Henry Lewis Clare, M.D late Surgeon-General of Trinidad and Tobago, in his 63rd year.

CLEMENTS.—On Jan. 16th, at Bellevue-road, Southborne, Bourn mouth, Lieutenant-Colonel W. G. Clements, R.A.M.C., Militar Hospital, Hilsea, aged 63 years.

DYER.—On Jan. 24th, at the London Fever Hospital, Islingto Francis Norman Victor Dyer, M.A., M.B., B.Ch. Camb M.R.C.S., and L.R.C.P. Lond., assistant medical officer, th dearly beloved only child of Mr. and Mrs. Dyer, and grandson the late Rev. Charles Dyer, in his 26th year.

LYSTER.—On Jan. 26th, at Bickenhall Mansions, W., Cecil R. Lyster, M.R.C.S., of Abbey Wood, Kent, aged 60.

O'CONNOR.—On Jan. 25th, at Waldegrave-park, Strawberry Hil Twickenham, Colonel Arthur Patrick O'Connor, C.B., A.M.S F.R.C.S.I., aged 63 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

DEATH OF DR. F. N. V. DYER.—Francis Norma Victor Dyer, who died on Jan. 24th from scarlet fever, wa educated at Marlborough and Clare College, Cambridge taking the Conjoint qualification in January, 1918, and th M.A., M.B., B.Ch. of his University in October last. Whe war broke out he served as a dresser in the 1st Easter Hospital, Cambridge, he was six months a surgeon probationer on H.M.S. *Buttercup*, then resident anæsthetis and casualty officer at St. Thomas's Hospital, afterward surgeon R.N. on H.M.S. *Birkenhead* until the surrender o the German Fleet, when he transferred to the R.A.F., an was a member of the Invaliding Medical Board at Hampstead. Demobilised at the end of October, he was assistan medical officer at the London Fever Hospital, where h died.

Medical Diary.

SOCIETIES.

OYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Feb. 3rd.

URGERY: SUBSECTION OF ORTHOPÆDICS (Hon. Secretaries —A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.
Cases will be shown by:
Mr. Aitken, Mr. Rowley Bristow, and others.
Short Paper:
Mr. Max Page: On the Use of Pneumatic Pads.

ATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones); at 8.30 P.M.
Dr. Teale: Phagocytosis *in vitro*.

Wednesday, Feb. 4th.

URGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.
Papers:
Mr. Garnett Wright: Congenital Diverticulum of the Colon.
Mr. R. H. Anglin Whitelocke: Appendicectomy, by a New Route.

PHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.
Case (at 8 P.M.):
Mr. G. Winfield Roll: New-formed Vessels on the Iris.
Paper:
Dr. S. H. Browning: The Cure of Gonorrhœal Iritis.

Thursday, Feb. 5th.

BSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
Papers:
Dr. Cuthbert Lockyer will read an abstract of a paper by Dr. Goodall on "The Origin of Tumours of the Ovary."
Mr. Gordon Ley: A Statistical Report of Carcinoma of the Ovary as met with in the Pathological Institute of the London Hospital between the Years 1907–1919 inclusive, showing the Relative Frequency of Primary and Secondary Ovarian Carcinoma.

Friday, Feb. 6th.

ARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4.45 P.M.
Cases and Specimens (4 P.M.) will be shown by:
Mr. Colledge, Mr. Charles Cuthbert, Mr. G. W. Dawson, Dr. Donelan, Mr. C. W. M. Hope, Mr. Buckland Jones, Mr. Horace Law, Mr. T. B. Layton, Sir William Milligan, Mr. Lawson Whale, Dr. Andrew Wylie.

NÆSTHETICS AND LARYNGOLOGY (JOINT MEETING) (Hon. Secretaries—R. E. Apperly, Ashley S. Daly, Irwin Moore, Charles W. Hope): at 8.30 P.M.
Discussion:
On "Anæsthesia in Throat and Nose Operations," to be opened by Dr. F. S. Rood.

EDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-quare, W.
MONDAY, Feb. 2nd.—9 P.M., Lettsomian Lecture:—Dr. H. R. Spencer: Tumours Complicating Pregnancy, Labour, and the Puerperium.

ECTURES, ADDRESSES, DEMONSTRATIONS, &c.

OYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 2nd.—5 P.M., Hunterian Lecture:—Sir Berkeley Moynihan, K.C.M.G., C.B.: The Late Surgery of Gunshot Wounds of the Chest.
FRIDAY.—5 P.M., Hunterian Lecture:—Prof. V. Z. Cope: The Surgical Aspect of Dysentery.

NIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, Feb. 3rd.—5 P.M., Lecture II.
A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.
WEDNESDAY, Feb. 4th.—4.30 P.M., Lecture II.
A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.
THURSDAY, Feb. 5th.—4.30 P.M., Lecture V.

NDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.
A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)
MONDAY, Feb. 2nd.—9.15 A.M., Lecture IV.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)
WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)
SATURDAY.—10.15 A.M., Lecture V., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

NG'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Post-Graduate Course of Lectures on Syphilis will be given by various members of the staff of King's College Hospital during the ensuing year.

FRIDAY, Feb. 6th.—9.15 P.M., Lecture II.:—Dr. W. d'Este Emery: Pathology and Pathological Diagnosis; Methods of Collecting Material for Spirochætes and for Wassermann Reaction; Interpretation of Results.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Feb. 2nd.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Price: The Pulse in Diagnosis (2).
THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.
FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.
SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Feb. 5th.—5 P.M., Lecture IV.:—Dr. E. C. Morland: Climate in Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Feb. 3rd.—2 P.M., Demonstration I.:—Mr. H. W. Carson: Hernia, with illustrative cases. 4.30 P.M., Lecture:—Dr. F. G. Crookshank: Types of Respiratory Disease in Childhood.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, Feb. 2nd.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Aldren Turner: Paraplegia. I.
TUESDAY, Feb. 3rd.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.
WEDNESDAY, Feb. 4th.—2 P.M., Mr. Armour: Surgical Treatment of Cerebral Tumours. I. 3.30 P.M., Dr. Greenfield: Pathological Demonstration.
THURSDAY, Feb. 5th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Saunders: Syringomyelia.
FRIDAY, Feb. 6th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Hinds Howell.
SATURDAY, Feb. 7th.—9 A.M., Surgical Operations.
Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
SATURDAY, Jan. 31st.—10 A.M., Mr. Banks Davis: Operations of the Throat, Nose and Ear.
MONDAY, Feb. 2nd.—5 P.M., Mr. MacDonald: Bacterial Infections of the Urinary Tract.
TUESDAY.—2 P.M., Dr. Pernet: Skin Department.
WEDNESDAY.—5 P.M., Dr. Owen: Electro-cardiographic Methods.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration.
FRIDAY.—5 P.M., Special Lecture:—Dr. R. Hutchison: Functional Dyspepsia.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Feb. 4th.—4.30 P.M., Lecture:—Dr. Punch: Morbid Anatomy of Pulmonary Tuberculosis.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
THURSDAY, Feb. 5th.—3 P.M., Prof. A. E. Conrady: Recent Progress in Applied Optics.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.
MONDAY, Feb. 2nd.—3.30 P.M., Dr. Nutt: X Ray Examination of Bones and Joints.
TUESDAY.—4 P.M., Dr. Hay: Ocular Sequelæ of General Diseases.
WEDNESDAY.—3.30 P.M., Dr. Wilkinson: Nasal Obstructions.
THURSDAY.—3.30 P.M., Dr. Skinner: Inflammations of Skin.
FRIDAY.—4 P.M., Dr. Hay: Diseases of Eyelids.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.
Post-Graduate Course of Lectures on Venereal Disease:—
WEDNESDAY, Feb. 4th.—4.15 P.M., Mr. B. Ward: Gonorrhœa in the Male. (Lecture III.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Feb. 3rd.—4.30 P.M., Lecture:—Dr. F. E. Tylecote: Some Features of Recent Epidemics of Pneumonia.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, Feb. 5th.—4.30 P.M., Lecture:—Dr. Heywood: Some Functional Nervous Disorders, with Special Reference to Organotherapy. (At Salford Royal Hospital.)

BALNEOLOGY: POST-GRADUATE COURSE IN CARLSBAD.—The municipality has fixed for the second half of September the second international post-graduate course of balneology and balneotherapy, which should have taken place in 1914. Prominent university teachers, at home and abroad, have undertaken to give lectures for this course. Inquiries are to be directed to the Manager, Dr. Edgar Ganz, Carlsbad.

BOOKS, ETC., RECEIVED.

ALCAN, FÉLIX, Paris.
La Cure de Bouchardat et le Traitément du Diabète sucré. Par F. Rathery, professeur agrégé à la Faculté de Médecine de Paris. Pp. 276. Fr.8.

ALLAN, PHILIP, AND CO., London.
G.H.Q. (Montreuil-sur-Mer). By "G. S. O." Pp. 306. 20*s.*

BAILLIÈRE, J. B., ET FILS, Paris.
Le Mal des Aviateurs ses Causes et ses Remèdes. Par les Dr. R. Cruchet et R. Moulinier. Pp. 96. Fr.3.

BALE, JOHN, SONS, AND DANIELSSON, London.
Musings of an Idle Man. By R. H. Firth, K.B.E., C.B., Colonel, late a Director of Medical Services with the British Army in France. Pp. 360. 7*s.* 6*d.*

COMBRIDGES, 56, Church-road, Hove.
Sussex in Bygone Days. Reminiscences of Nathaniel Paine Blaker, M.R.C.S. With Foreword by Habberton Lulham and an Introductory Letter by Sir Arthur Newsholme, K.C.B. Pp. 200. 5*s.*

CROSBY LOCKWOOD AND SON, London.
Mechanical Dentistry. By C. Hunter. 7th ed., revised. Pp. 266. 5*s.*
Applied Chemistry. A Practical Handbook for Students of Household Science and Public Health. By C. Kenneth Tinkler, D.Sc., F.I.C.; and Helen Masters, B.Sc., and King's College Diploma in Household Science. Vol. I. Pp. 292. 12*s.* 6*d.*

DORNAN, W. J., Philadelphia.
Transactions of the American Surgical Association. Vol. XXXVI. Edited by J. F. Binnie, M.D. Pp. 602.

GREEN, W., AND SON, Edinburgh and London.
Encyclopædia Medica. 2nd ed. Under the general editorship of J. W. Ballantyne, M.D. Vol. VI., Heat Fever to Intertrigo. Pp. 658.

HEINEMANN, WILLIAM, London.
X Ray Observations for Foreign Bodies and their Localisation. By Capt. H. C. Gage, Consulting Radiographer to the American Red Cross Hospital, Paris. Pp. 87. 6*s.*

HOEBER, PAUL B., New York.
The Proceedings of the Charaka Club. Vol. V. Pp. 100. $4.00.

HODDER AND STOUGHTON, London, New York, and Toronto.
A History of the Scottish Women's Hospitals. Edited by Eva Shaw McLaren. Pp. 408. 7*s.* 6*d.*

JARROLDS, PUBLISHERS, LTD., London.
Health in the Home. By A. K. Gordon, M.B., B.C. Cantab. Pp. 245. 5*s.*

LEA AND FEBIGER, Philadelphia and New York.
Diseases of the Nervous System. A Text-Book of Neurology and Psychiatry. By S. E. Jelliffe, M.D., and W. A. White, M.D. 3rd ed. Pp. 1018. $8.00.

MASSON ET CIE, Paris.
Traité d'Endoscopie Recto-colique Rectoscopie Sigmoïdoscopie. Par le Dr. R. Bensaude. Pp. 48 and 15 plates. Fr.28.

MILFORD, HUMPHREY, London.
Nutrition of the Fœtus. By J. M. Slemons. Pp. 50.

MURRAY, JOHN, London.
Psychologies. By Sir Ronald Ross. Pp. 69. 2*s.* 6*d.*

UNIVERSITY PRESS, Cambridge, and CLAY, C. F., London.
The Foundations of Music. By H. J. Watt, D.Phil. Pp. 240. 18*s.*

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. R. J. Albery, Lond.

B.—Dr. A. D. Bigland, Liverpool; Mr. H. Barwell, Lond.; Sir John Byers, Belfast; Brompton Hospital for Consumption, Lond., Dean of; Dr. C. R. Box, Lond.; Mrs. M. A. C. Brereton, Lond.; Mr. H. W. Bayly, Lond.; Mr. H. Brown, Birmingham.

C.—Dr. H. P. Cholmeley, Forest Row; *The Common Cause*, Lond., Editor of; Dr. J. Craig-Macgown, Knowle; Mr. E. C. Cline, Lond.; Mr. G. Chubb, Lond.; Miss G. Cowlin, Lond.

E.—East Sussex County Mental Hospital, Hellingly.

F.—Dr. F. Fergus, Glasgow; Major R. M. Fenn, R.A.M.C.; Mr. C. H. Fevez, Lond.

G.—Mr. G. H. C. St. G. Griffiths, Clifton.

H.—Major E. V. Hemelryk, Liverpool; Dr. G. W. Hill, Lond.; Dr. E. Hagenbach, Basel; Mr. H. T. Hicks, Derby; Dr. B. Hughes, Bradford.

I.—Insurance Committee for the County of London; Incorporated Institute of Hygiene, Lond.

K.—Mr. G. L. Keynes, Lond.; King Edward's Hospital Fund for London, Sec of.

L.—*Law Times*, Lond., Editor of; Messrs. Lawson and Co., Bristol.

M.—Mr. M. F. Moloney, Dungarvan; Ministry of Health, Lond.; Dr. C. F. Marshall, Lond.; Capt. R. W. H. Miller, R.A.M.C.(S.R.), Karachi; Medical Research Committee, Lond.; Dr. J. W. S. Macfie, Accra; Medical Women's Federation, Lond.; Dr. H. A. Macewen, Lond.

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R.—Prof. G. M. Robertson, Edinburgh; Royal Society, Lond.; Research Defence Society, Lond.; Royal Colonial Institute, Lond.; Royal College of Surgeons of England.

S.—Dr. R. V. Solly, Exeter; Dr. J. S. B. Stopford, Manchester; St. Mary's Hospital for Women and Children, Lond., Matron of; Scottish Poor-law Medical Officers Association, Glasgow; Dr. J. O. Symes, Clifton; Dr. W. D. D. Small, Edinburgh; Mr. J. Sherren, Lond.; Mr. B. Sinclair, Edinburgh.

T.—Dr. A. H. Thompson, Lond.; Dr. J. Taylor, Lond.

V.—Village Centre Council, Lond., Sec. of.

W.—Dr. R. T. Williamson, Lond.; West London Hospital Post-Graduate College; World Trade Club, San Francisco; *Welfare Work*, Lond.; Miss M. A. Willis, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

AMUSEMENTS AND THEIR EFFECTS.

BY HERBERT CARSON, F.R.C.S. ENG.

IN the course of a lecture delivered at the Institute of Hygiene on Jan. 21st, Mr. Herbert Carson said that amusement was necessary for civilised people as it had a definite effect on health and the recuperative powers. There was a definite ratio, too, between efficiency and fatigue, so that a shorter working day might result in greater output, better work, and fewer accidents. But the consequent increase of leisure made it necessary that the workers should be taught how to spend it, and the true interests of the community demanded that the workers should be instructed in the value of leisure. Marking the difference between urban and rural populations, he said that the inhabitants of rural districts did not favour field sports, probably because their feet were too often on the turf, and the absence of amusements resulted in desultory discussions and ill-natured gossip at the village inn. There was great need for the organisation of village centres providing clubs, reading rooms, lending libraries, discussion circles, and social games—free from the domination of the Church. In the towns a large army of people was employed in promoting amusements for others and enormous sums were spent. The entertainment tax brought in last year over £7,000,000, which meant that, in taxed amusements alone, £50,000,000 was spent, or about one-fortieth of the whole national income. Professional sport was now at the height of its vogue, and the first round of the Football Association Cup had drawn £36,000 from 526,000 spectators at [illegible] matches—or sufficient money to maintain a hospital of 200 beds for a whole year and confer lasting benefit on 3000 in-patients and 50,000 out-patients. Active amusements provided the ideal way of spending leisure. Economic changes due to the war had caused a decline in the outdoor sports of the wealthy, such as polo and hunting, and even golf was becoming an expensive game. Cricket and football remained as the recreations of the many; and, now that the danger of critical shortage of food was past, he considered that the acreage in open spaces which had been diverted to allotments should be returned to its original use.

Strenuous Week-ends.

As a medical man, he thought it necessary to issue a gentle warning against the strenuous week-end. Many hard-driven business men rushed off at Saturday midday for an orgy of exercise. They played golf or tennis with great vigour throughout the week-end, and "slept like a top." But it was really the sleep of bodily exhaustion which, during what should have been a period of rest, they had added to the mental strain of the week's business; and with the shady side of 40 this would tell. The craze for dancing might appear to be going too far, and the atmosphere of the ballroom was certainly not perfect hygienically. But he considered that it was productive of much useful development, and that any tendency to abuse would adjust itself. Night clubs and bridge clubs were becoming a serious scandal, and were the best proof that we do not know what to do with our leisure.

Educational Possibilities of the Cinema.

Concerning the cinema, Mr. Carson said that it made a great appeal by its cheapness, and, although much trashy stuff was presented, it succeeded in bringing amusement to millions who had not previously been catered for. Cinema halls were not hygienically commendable, as they excluded light and air and did not permit free ventilation, and there was danger of infection. The cinema had great educational possibilities, as it was easier to teach through the eye than through the ear, but he did not consider that mixed educational and entertainment programmes would prove popular. The theatres had had a great boom, and it did not seem to matter much what quality of entertainment was provided. Revue followed revue with similar music and the same jokes; but better things came from time to time, when a Moscovitch interpreted Shylock in a way that would have delighted Shakespeare, and the character of Abraham Lincoln, in Mr. Drinkwater's play, was delineated in a lovable manner. But audiences were curiously uncritical, and solaced themselves with chocolates as an antidote to depressing entertainments.

Recreation for Women and Children.

The population at large, and especially the children, were being deprived of opportunities for recreation by allotments which probably added little to food supplies and provided exercise for only a very few. The question of amusements for children was really the most important aspect of the whole subject, and the value of play centres for elementary school children and the effect of organised games at secondary schools are the outstanding points of interest. These may have the most important bearing on the health of future generations. A great advance was taking place in active recreation for women. The games mistress and director of physical education was now an important member of the staff at all schools, and the girl of to-day, with her well-developed body and fearless outlook on life, compared most favourably with her Victorian predecessors. The social welfare movement among working women instilled in them the general principles of hygiene, improved their health, and made their work a pleasure to them. Little had yet been done for the working man's wife. She had increased leisure now that children could be fed at the schools and entertained at the play centres, but little recreation had been provided for her.

The Public House as the Poor Man's Club.

It was still the public-house that gave the poor man the chance of meeting his fellows. Although unsavoury, it was the poor man's club, and was often cleaner, warmer, and more jolly than his own home. The existing public-house was a disgrace to our civilisation, and would probably not be allowed to continue in any country but this. The many efforts made to improve it were strongly opposed by temperance advocates, who feared that a decent type of public-house would attract more people, and by the trade, which feared that customers would stay too long with too little outlay of money.

THE PURSUIT OF THE LOUSE.

UNDER the auspices of the London County Council a lecture to teachers and others was given on Jan. 26th at the South Western Polytechnic, Chelsea, by Mr. A. Bacot, entomologist to the Lister Institute of Preventive Medicine, on Lice-borne Diseases and their Treatment. Mr. Bacot, whose lecture was illustrated with lantern pictures and supplemented by a microscopic demonstration, described the three kinds of lice which breed upon man. Two of them, the head and the body louse, were so closely related that it was doubtful if they could rank as species, while the third, the crab louse, was not so widely spread, as its conditions of existence were more limited. The well-recognised association between dirt and lice was due to the fact that the conditions which led to neglect of the body and the clothes were favourable to the spread of the insects, but dirt in itself was not a necessary condition of their propagation. Poverty led to lousiness; not only material poverty, but also that of intellect and physique. Old and infirm people could not always keep their body and clothes free from the pests, and in the past the mental attitude which associated dirt and holiness encouraged lousiness. In the case of the modern tramp it was often the mental outlook that led to his manner of life. The conditions which prevailed in the trenches were due to the fact that the results of crowding men together were not recognised early enough. In civil life the frequent changing of clothes brought about an environment in which, although the louse might live, it could not breed. The louse hatched out of the egg in a state very similar to that of its parent, and, after moulting three times, became an adult insect in about 12 days. The temperature necessary for successful breeding was between 75° and 90° F. The mature life of the louse infesting body and head might extend to 35 or 45 days, the number of eggs laid during that period being about 300. The pubic louse, on the other hand, laid only about 50. The body louse and her daughters together might lay about 4000 eggs during the mother's lifetime, and after her death the daughters would lay up to 12,000 eggs during the remainder of their lives. The louse depended for its existence on the blood of its host, and removed from the body of the host the insects did not live long. The effects of bites apart from disease differed over wide limits among different individuals, one man showing practically no effects and another a marked effusion of blood over the surface of a whole limb, or in other cases the formation of watery pustules.

Lice-borne Disease.

Of the three fevers conveyed by lice (typhus, trench fever, and relapsing fever), typhus was the most serious, and had always been associated with war and famine in Europe. Lice did not transmit a disease unless they had first bitten a patient suffering therefrom, but in the case of typhus fever it was suspected that the female might pass on the disease to her eggs. Referring to the ravages of typhus in Europe, Mr. Bacot said that what this country must really depend upon as a safeguard was such a high standard of health and cleanliness that people did not become lousy. If such conditions were maintained we should certainly get no general epidemic, even though one should occur as near as France. The danger arose when people were so poor that they were afraid of having their clothes washed for fear of injuring them. Discussing the methods of destroying lice, the lecturer said that in the case of clothes dry heat was best, and it could be done in an ordinary oven with a temperature of 52° C. or 124° F. Moist heat was also effective, but it must be applied with judgment otherwise the results were not satisfactory. For application to the body various oils could be used, such as sassafras mixed with paraffin or kerosine, and he had found light wood oil[1] most effective. The essential thing was to have penetrative power combined with prevention of evaporation. This was attained, for example, by the admixture of vaseline and kerosine. Objectionable smells from the oils could be disguised with camphor. Nothing was known which would dissolve the cement which fixed the eggs to the hair, but it could be so modified with acids as to loosen it and make it possible for the eggs to be drawn off with a comb.

THE ÆTIOLOGY OF CARCINOMA OF THE BREAST.

A CORRESPONDENT has recently suggested as a factor in the ætiology of carcinoma of the breast the perverted action of ovarian hormones. He draws attention to the close physiological connexion between the mammæ and the genitalia, and suggests that at the climacteric, which corresponds to the average age-incidence of carcinoma of the breast, the genital hormones, being no longer required to stimulate physiological development of the breast, undergo a degeneration and give rise to pathological development. It is a good working rule that the onus of the proof of any theory lies upon the author thereof; it is one thing to enunciate a hypothesis, but quite a different thing to bring it into line with such stubborn things as facts.

A few years ago this very theory was brought forward as the basis of a method of treatment of inoperable cancer of the breast. As has invariably happened in the history of malignant disease, some remarkable cures resulted from the new treatment, but favourable results became fewer with extended experience, and oöphorectomy is no longer performed for carcinoma of the breast. There is, in point of fact, no theoretical support for this form of treatment. The age-incidence of carcinoma of the breast is rather later than the climacteric, but, on the other hand, it is much the same as the age-incidence of carcinoma in other organs on which, so far as we know, ovarian hormones have no action whatever. Again, the fairly high incidence of the disease in women before the age of 40 and its occasional occurrence in the male are both inexplicable by this theory. There is plenty of evidence to show that reactive inflammatory lesions are the most constant precursors of the malignant change in the breast glands, but there is no anatomical basis for the belief that these changes are connected in any way with morbid processes in other organs.

PUBLIC HEALTH AT COLOMBO, 1918.

THE population of Colombo at the middle of 1918 was estimated at 264,746, of whom 118,767 were native Sinhalese, 64,133 Tamils (Southern Indians), 46.643 Moors (of Arab descent), 17,361 Burghers (of Dutch or Portuguese origin), and 3700 Europeans, the remaining 14,142 consisting of Malays and others. The general birth-rate was 22·4 per 1000, and for Sinhalese it was 28·1; amongst Malays it was 41·2, and amongst Tamils only 13·2 per 1000. The general crude death-rate was 28·0, compared with 29·0 for the decennium, 1908–17; as corrected for hospital deaths of non-residents and for age and sex constitution, the ratio was 29·4 per 1000; this is extremely satisfactory, considering the severe invasion of influenza. Amongst Malays the ratio was 37·4, Sinhalese 32·1, Tamils 23·2, Moors 24·7, and in Europeans only 13·0 per 1000; if corrected for deaths in institutions this last ratio is reduced to 9·5 per 1000. The chief cause of death was pulmonary disease in some form or other; the total mortality from this group of affections amounted to 2479 deaths (9·40 per 1000), pneumonia (6·12) and phthisis (2·53) being the chief causes, due to influenza. Of enteric fever there were 430 cases (1·62 per 1000), with 181 deaths; this gives a case-mortality of 42·1 per cent. (and in regard to Moors 65·7 per cent.), thus indicating that there must have been many cases not notified. There were only 13 cases among Europeans, with 3 deaths; all of these cases (except 3) contracted infection away from Colombo. The incidence of plague (0·27 cases per 1000) was lower than in any year since the commencement of the pandemic; there were only 70 cases (69 fatal),

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[1] Light wood oil is a by-product obtained in the making of acetone by the destructive distillation of wood. We understand that at the present it is not in the commercial market, but probably the Ministry of Munitions would be able to supply institutions and other public bodies who required it. The price, probably a few pence per pound, would compare very favourably with sassafras oil.

35 being amongst Tamils, and none occurring in the European population; the incidence was chiefly in St. Paul's Ward (25 cases), and the rat infection, though on the whole slight (0·29 per cent. infected out of 21,000 examined), was considerable in the Fort Ward, where it was promptly suppressed by the use of Clayton fumigators and pesterine. Influenza became epidemic in Colombo in June and July, especially in the neighbourhood of the harbour, but was of mild type (6 cases fatal) and rapidly disappeared. During the third week in September a fresh outbreak occurred, complicated with a very virulent and rapidly fatal form of pneumonia; the actual number of cases cannot be stated, but in October and November 9200 cases (including 961 cases of pneumonia) were treated by the municipal staff alone. There were 275 deaths actually recorded throughout the year, but Dr. William Marshall Philip, the medical officer of health, who presents this very interesting report, considers that this figure does not by any means represent the real mortality due to the disease. The total deaths from pulmonary affections registered in 1918 were 21 per cent. in excess of the average for 1903–1918 (7·77 per 1000), and for pneumonia alone 80 per cent. above the mean (3·40 per 1000). This is graphically illustrated by diagrams. The report is accompanied by an excellent map, which adds considerably to its value.

MALARIA IN THE FEDERATED MALAY STATES.

IN 1911 a Board was constituted for the purpose of advising the Government of the Federated Malay States in the carrying out of a general campaign against malaria. Its chief aims were the collection of information as to the causes, incidence, and effects of the disease, the education of the people in this connexion, and the extermination of anopheles in all thickly populated centres, and (where practicable) in rural areas. The Board has for its president the Chief Secretary to Government, Sir Edward Brockman, K.C.M.G., and the principal medical officer, Dr. C. L. Sansom, C.M.G., for its vice-president. The executive engineer operates under the authority of the Board; the medical entomologist reports to the Board, but is independent as regards methods of investigation and expression of opinion. Dr. C. Strickland was medical entomologist from 1912 to 1917, in which latter year he presented his final report on the biology of the anopheles mosquitoes of the Malay peninsula. Dr. Strickland was succeeded by Dr. H. P. Hacker in February, 1917. The report states that:—

> The experimental work done on the relation between mosquitoes and malaria is mainly of value as indicating the lines on which further investigations should proceed. Experiments made in infecting various species of mosquitoes and in transmitting malaria from man to man, and observations on the prevalence of various species, their breeding places, and other features, have clearly pointed to the existence of factors which are not yet understood, and the importance of further and adequate researches to elucidate such factors. ...... It would appear that severe malaria has occurred at times when but few anophelines or little anopheline breeding were evident, and that little malaria has been apparent when anophelines were numerous. ...... The further study of species is therefore essential.

Mistakes appear to have been made in the drainage operations undertaken some years back, but since the end of 1912 "it could be safely claimed that malarial infection was rare within the district protected by drainage." Since then the works have been considerably extended, though war conditions have caused delay. Oiling of breeding-places has also been practised. Dr. Strickland's observations led him to the belief that in most hill land jungle no malaria-carrying anopheles exist, and that the preservation of such jungle in hill land ravines and swamps is an important anti-malarial measure; he did not apply the argument to coastal jungle other than mangrove forest, and obviously great watchfulness as to results would be necessary. Kuala Lumpur, the seat of government for the Federated States, with a population of 47,000, has now been provided with efficient land drainage for an area of 4500 acres, and at an expense of 231,679 dollars for construction, with an annual maintenance charge of 10,000 dollars; drainage works are in hand for a considerable additional area in the low ground to the north and east, and some high ground to the west is receiving attention from private authorities. The report concludes with the statement that "malaria is beyond dispute the great natural obstacle to the economical and humane development of the Malay States, and equally concerns all classes of the community." That it will yield to a suitable campaign admits of no doubt, and the progress already made is a sufficient guarantee.

METRIC PRESCRIBING.

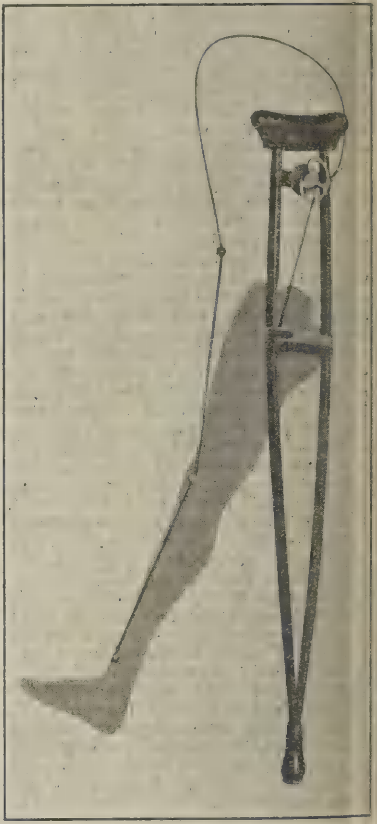
To the Editor of THE LANCET.

SIR,—With reference to Dr. Wright Hardwicke's interesting letter in your issue of Jan. 17th, saying that it is the continental custom of placing the denomination instead of the decimal point between the integer and fraction (for instance, 8 g. 5 instead of 8·5 g.), in this method there would seem to be contravention of two of the rules laid down by an International Committee (that is, according to the Reichs-Medizinal Kalender, by Dr. Paul Börner, published in 1914). He there states: "Die offiziellen Abkürzungen für die Masseinheiten sind gelegentlich der letzten Sitzung des internationalen Komitees für Masse und Gewichte festgesetzt worden," and adds, as rule No. 1, "Den Buchstaben werden Schlusspunkte nicht beigefügt" (the letters will not be followed by any fullstop). Thus I understand 5 g not 5 g. is meant. Rule No. 2, "Die Buchstaben werden an das Ende der vollständigen Zahlenausdrücke—nicht über das Dezimalkomma derselben—gesetzt, also 5,37 m—nicht 5 m 37 und nicht 5 m 37 cm." (The letters will be placed at the end of the complete figure expression, not against the decimal comma, thus 5,37 m—not 5 m 37 and not 5 m 37 cm.)—I am, Sir, yours faithfully,

Jan. 18th, 1920. W.

A CRUTCH WHICH ENABLES A PARAPLEGIC TO WALK.

AT the meeting of the Académie de Médecine of Paris on Dec. 2nd last M. Gabriel Bidou showed a very ingenious mechanism which can be applied to any crutch; it works by utilising pressure of the hand on a lever to elevate and flex the lower limbs on the pelvis. It is particularly useful in all forms of paraplegia, but may also be used in cases of paresis or temporary weakness of the lower limbs. It consists of a pulley, on which runs a cord, and of an "eccentric," or cam, as engineers term it, fixed on the same axis as the pulley. Smoothness of movement is ensured by ball-bearings. The whole is fixed to a cross-bar, which can be attached to the upper part of the crutch by two screws. To the handle of the crutch there is also fixed, by two screws, a steel cap bearing a lever which is controlled by the hand. A leather thong attached to the uprights of the crutch, into which the patient passes his arm, as if he were carrying a buckler, allows him to use the crutch while preserving freedom of the hand. A cord connects the lever with the pulley, and another cord connects the cam with the patient's leg, passing through a protective sheath, like that of the brake of a bicycle, beneath the clothes. The apparatus is used as follows. The paraplegic supports himself on four points — the two lower limbs and the two crutches. His centre of gravity then lies over the middle of the quadrilateral so formed. He walks in the following manner. Carrying slightly the weight of his body to one side he transforms the basis of support into a triangle formed by the two crutches and one lower limb. Thus by the lateral inclination of the body he sets free the other lower limb. At this moment he leans on the lever and raises the limb. When the limb has been brought forward and applied to the ground the paraplegic will bear on it, and his triangle of support, instead of being right, for example, will become left. He then goes through the same process with the other limb, and so progresses. The cord which drags the lower limb may be attached to the front of the boot by a ring, either on the right side or the left, according as it has to pull against opposition of adductors or abductors. This simple apparatus ought to prove most useful.



Some Remarks
ON
"BONE-SETTING":
THE PRACTICE AND RESULTS OF FORCED MOVEMENT.

By JAMES B. MENNELL, M.D. CANTAB.,
PHYSICIAN IN CHARGE MASSAGE DEPARTMENT, SPECIAL MILITARY SURGICAL HOSPITAL, SHEPHERD'S BUSH, W.; MEDICAL OFFICER, PHYSICO-THERAPEUTIC DEPARTMENT, ST. THOMAS'S HOSPITAL.

THE whole subject of the treatment of the after-effects of injury is interwoven with that of the administration of forced movement, and this in turn is intimately connected with the art of what is commonly known as "bone-setting." The principles which underly the administration of forced movement in the massage-room are very similar to those that should control forced movement under an anæsthetic. I am constantly asked to expound the principles of "bone-setting," to explain as far as I may why the quack "bone-setter" is able to flourish so exceedingly, and to compare the results of "bone-setting" with those of orthodox practice. The first reflection is that the material on which the "bone-setter" thrives should never exist. This does not mean that the formation of adhesions can always be wholly prevented, but it should be, and may be, very greatly eliminated; and, whenever this is impossible, the adhesions should be broken down at the earliest possible moment. Speaking generally, it may be said that the "bone-setter" flourishes, not because people suffer injury, but on account of the treatment they receive. The doctrine of fixation, rest, and splintage is his great ally; his enemy is the treatment of recent injury by mobilisation. Until the time has come when the old teaching of absolute and prolonged rest after injury shall have been supplanted by Lucas-Championnière's doctrine of the scientific combination of rest with mobilisation, the type of disability which fills the "bone-setter's" rooms will never decrease.

But, do what we may, no amount of skill in treatment will always prevent the formation of adhesions after injury, especially in the presence of sepsis; and, if they form, it is essential that we should know how to deal with them, and carry out our treatment as early as possible.

It has fallen to me to encounter many of the failures of the "bone-setter," and from them much may be learnt. I have also had the most valuable and, I believe, uncommon experience of witnessing the results of mobilisation under anæsthesia as practised by a very large number of different surgeons—some, as I believe, too conservative, some too drastic. I have also discussed this subject very widely with surgeons on both sides of the Atlantic, and have been able to form conclusions as the result of these varied experiences. In my own practice I know only too well how often I have withheld my hand when movement under anæsthesia would have saved prolonged treatment, pain, and tedious convalescence. I know, too, why I have been so often tempted thus in the past, and the reason may be summed up in one word—failure. It was only when I realised the cause of failure that I again began to practise manipulation under anæsthesia and formulated the principles which I believe should govern the art. Now this method of treatment is a mainstay on which I frequently rely not only to hasten convalescence, but very often to render possible cure of disability.

CAUSES OF FAILURE.

The cause of my failure in earlier days was dual in origin; first, I did not know what the natural movements of joints were, and second, I tended to do too much. Because a patient is unconscious he cannot feel pain, but this is no excuse for mobilising a joint indiscriminately. During conscious life reflex contraction of the muscles that oppose a movement invariably takes place so as to limit the movement before undue strain is placed upon normal structures. Under anæsthesia this protective reflex is lacking, and so it behoves us, if we would avoid inflicting injury, to exercise even more care when we approach the limit of movement than we should use were the patient conscious.

Then comes a consideration which I believe to be very generally overlooked, but clinical experience has convinced me of its accuracy. This is that adaptive shortening takes place in the body with astounding rapidity, and particularly in the presence of pathological change, even though this change is only reflex wasting of muscle. Each muscle fibre and group of fibres is surrounded by a connective-tissue sheath, and this sheath is endowed with the property of elasticity. Deprived of its function of shortening and lengthening, the sheath seems to lose its capacity very rapidly, and, for the time being, becomes comparatively inextensible. The whole muscle mass, in other words, has undergone adaptive shortening. Restoration of function alone restores the elasticity. If, then, we imagine that the movement, say, of extension of the elbow has been limited by adhesions in or round the joint for some weeks, it follows that the flexors throughout that time have never been fully stretched. The elasticity of the fibrous tissue which goes to the make-up of the anatomical muscular mass has, therefore, never been utilised to the full extent since the day when adhesions which limit extension first began to form. The result is that the elasticity remains unimpaired only through the range of movement allowed by the adhesions. Beyond this range the elasticity is impaired, or, if the lesion is of long standing, may be almost non-existent. When the patient has been anæsthetised and movement has been performed through sufficient amplitude to rupture the adhesions, all further attempt at movement will tend to place undue strain upon the fibrous tissue, which, as we have seen, has suffered impairment of its extensible properties owing to disuse. Forced movement through the full anatomical range may thus inflict severe injury on the fibrous tissue that has lost the elasticity which is essential for the natural performance of the movement.

RULES IN MANIPULATION.

The first golden rule in manipulation under anæsthesia should therefore be that no further attempt at movement is to be made in any direction when once a definite adhesion has been felt to give way. If this rule is ignored injury will inevitably be inflicted on the fibrous tissue which forms a large bulk of the muscles which oppose the movement. Movement in other directions may, however, be continued. Two criticisms then arise. First, full range of movement may not have been restored by one manipulation; and, second, we do not know that, because one adhesion has been broken, there may not be others which still limit movement.

The answer to the first criticism is this. Rupture of a pathological band is practically painless, and the local reaction is mild and transitory when compared with the considerable reaction that follows undue stretching—i.e., spraining—of physiological tissue. There should be, therefore, no interference with function and the voluntary use of the limb after skilled mobilisation, except that due to inelasticity of the fibrous tissue within the muscles, and perhaps a mental incapacity to realise that movement or use, which has hitherto been impossible, is restored. Functional use of the limb will rapidly restore the elasticity either up to the anatomical limit or up to the limit allowed by other adhesions, should these exist. If, on the other hand, we have forced movement to the anatomical limit, and have thereby overstretched the temporarily inelastic fibrous tissue, we have inflicted a more or less severe sprain, since normal movement may be excessive for structures that have undergone adaptive shortening. Thus we inflict a fresh injury which may be no less difficult to cure than that which the patient originally sustained.

The answer to the second criticism is that it is better to break down any second adhesion under a second anæsthetic and inflict no further injury, than to break down both at once and inflict an injury which is a potent predisposing agency to the formation of new adhesions. Essentially is the old adage "More haste, less speed" applicable to forced movement under anæsthesia.

The criterion of success after the manipulation should be that the patient has increased function; loss of function speaks of an error in technique. Unfortunately this is not generally realised, and many surgeons labour under the delusion that, should the necessity of giving a second anæsthetic arise, they made an error in not doing sufficient on the first occasion. The "bone-setter" suffers from no such delusion, and frequently arranges from the outset to perform a series of manipulations when proposing to loosen a joint in which there has been gross limitation of movement for a considerable time. His practice is sound, and we should undoubtedly accept this lesson he teaches. More active harm is done by excessive movement under anæsthesia than passive harm by neglect to use this most valuable remedial agency.

CHOICE OF TIME, ANÆSTHETIC, AND TECHNIQUE.

The question as to when forcible manipulation should be performed is not an easy one to answer. If the injury has been uncomplicated by sepsis, it is probably unwise to proceed until six weeks have elapsed since the receipt of injury. I have fixed this limit for the simple reason that it is by no means certain that the exercise of the voluntary function of the limb will not restore the movement that is lacking till at least this time has elapsed. If sepsis has been present, and if this has obviously played some part in causing the limitation of movement, it is probably unwise to manipulate the part forcibly for several months, three to six, according to the severity of the sepsis. The same applies to cases in which loss of function is due to osteoarthritis and similar causes. I make it a rule also to hold my hand for three months at least in all cases where injury has resulted in the outpouring of an excessive callus formation.

It is not uncommon for attempts to be made to break down adhesions without the aid of an anæsthetic. Provided the limitation of movement is small, and the original injury to the joint in question is probably slight, this is quite justifiable. For instance, it is often a simple matter to rupture adhesions in the inferior radio-ulnar joint after a Colles's fracture without an anæsthetic. On the other hand, an attempt to flex rigid metacarpo-phalangeal joints in similar manner is opposed by the full strength of the long extensors in the forearm, and the movement cannot be performed without severely straining and thus injuring them. It should be a guiding rule, therefore, always to administer an anæsthetic whenever we are liable to encounter severe muscular resistance to our manipulations.

The choice of anæsthetic depends chiefly on the skill of the anæsthetist. Nitrous oxide gas suffices if adequate skill in administration is forthcoming, and if the manipulator knows exactly what to do and how to do it. Very few seconds should suffice for the manipulation of most joints, and a skilled anæsthetist can almost always ensure this much at least of complete relaxation with nitrous oxide gas. For manipulation of the hip or back it is wise to use some other anæsthetic, as more time is required for these manipulations than in most other joints.

The grip employed during manipulation is important. Our aim being to rupture an offending band *and no more*, it is usually wise to use as short a leverage as possible. Then, too, we want to reduce subsequent pain and disability to a minimum, and experience shows that this end is attained better if the adhesions are broken by a single sharp movement than by a slow gradual tearing. Rapidity of movement should be combined as far as is compatible with complete control, which checks the movement the moment the objective—i.e., the rupture of the adhesion—has been attained. On the other hand, nothing could possibly represent a greater error in technique than to give a succession of ineffective tugs on the offending band. Once its resistance is encountered it must be overcome forthwith; once overcome, the movement must instantly cease.

Hutton's statement that force in pulling or pushing is valueless, but that "the twist is the thing," gives the key to manipulations of most joints. The whole art is the knowledge of what precise "twist" to administer to each individual joint.

GENERAL PROCEDURE.

The first thing to ascertain definitely is what movement or movements are limited or give rise to pain, and it is usually wise to compare the mobility of the sound limb with that which we are about to manipulate. Then, directly the patient is relaxed under the anæsthetic, every movement which the patient can perform freely and voluntarily is carried out rapidly. If any resistance is encountered we know the patient is not relaxed, and await a more propitious moment for breaking the adhesions. Once relaxation is assured, the joint is moved firmly and steadily past the obstruction. If movement has not been limited, but only painful, full movement through the anatomical limits should be performed in all directions. If movement has been limited, only those movements which have previously been free and painless may be performed to the full. As we pass the limit set by adhesions, one of two things will be noticed: either there will be a sharp crack or click, or a dull tearing, often felt rather than heard. Instantly manipulation becomes more guarded, and is carried on only sufficiently to feel that free movement is now possible past the point to which it was formerly limited. The manipulation then ceases in the direction chosen, and the process is repeated in any other direction in which movement had previously been limited. Nothing whatever is to be gained by repetition of movement in any direction, if those already performed have been carried through with necessary exactitude. To repeat a movement is a confession of doubt as to the skill with which our performance has been carried out.

The patient is allowed to come round and, as soon as possible, is called upon voluntarily to perform the movement which has hitherto been limited. If the movement is performed more freely or with less pain, the manipulation may be regarded as having been skilfully performed; if it is more limited or if pain persists for more than, say, half an hour to an extent that limits voluntary activity, then we must have grave doubts as to whether we have not been over-zealous. It is essential that properly devised exercises should be prescribed forthwith, and that these should be faithfully carried out. If any period of rest is necessary after the manipulation on account of pain, the whole success of the proceeding is jeopardised.

If the limitation of movement has been due to dense muscular adhesions, or to adhesions within tendon-sheaths, an alternative course is open to us. If we proceed as already indicated, very little progress will be made and frequent repetition will be essential. As it is usually unwise to repeat manipulation within a week, this means a prolonged and tedious recovery. It is well, then, to have an alternative method of treatment, and this is to be found in free manipulation followed by immediate fixation in plaster over *very* thick padding. The reaction is intense and pain acute, usually for several days, and nothing except morphia suffices as a rule to secure sleep. The plaster should be left untouched until the pain is definitely easing off, which usually means a delay of several days. Then it is cut sufficiently to allow the part to be massaged while still resting on the padding on the surface opposite to our manipulations. Pure relaxed movement is then performed, as for recent injury, in the direction opposite to that in which the limb has been fixed; the original posture is next restored, and the portion of the plaster removed for the manipulation is replaced in position and fixed there rigidly by adhesive plaster. The retentive apparatus is usually required for four weeks, after which it is discarded by slow stages.

THE MOVEMENT OF INDIVIDUAL JOINTS.

A few details regarding the essentials to be noted when moving individual joints call for special emphasis.

The Shoulder-joint.

When dealing with the shoulder it must be remembered that few people can, when recumbent, touch the side of their face with the surface of the arm by movement solely in the horizontal plane. The limit of normal movement in this direction depends on the position of rotation of the head of the bone, and the widest range of abduction is reached when the internal epicondyle faces directly forwards. Even so, full abduction is rarely possible without a small degree of flexion. Movement in the horizontal plane may be performed until the angle between the arm and the neck is some 30°; the limb then requires to be carried forward before it is dropped back nearly into the former plane, resting against the side of the head. Neglect of this precaution only tends to strain normal structures, and should the surgeon imagine that the normal limitation of movement is pathological a very severe sprain will be inflicted. After abduction movement has been performed the elbow is flexed to a right angle and carried forward across the chest. External rotation is performed in this position, but natural movement ceases considerably before the forearm is vertical. Abduction is then performed, combining this with both external and internal rotation, and the elbow is carried round the base of a cone of which the head of the humerus forms the apex. Until the abduction is just short of a right angle the scapula should not have moved; if it has done so it is well that an assistant should check it by pressure on the axillary border. The movement proceeds until an offending band is felt to give or until the movement has been completed as already indicated. The patient is then rolled on to his side and internal rotation is carried out until the posterior aspect of the second finger rests vertically upon the spinous processes between the scapulæ. Movement in any given direction ceases the moment any definite obstruction has been overcome. Only one other detail calls for emphasis. It is well to guard the biceps tendon with the thumb as it rests in the bicipital groove throughout the manipulation

The Elbow-joint.

When manipulating an elbow one special precaution is necessary which does not apply to the treatment of other joints. Here, too vigorous treatment is liable to meet with a disaster which is not likely to be encountered in other situations. If there has been a recent fracture in the neighbourhood, an excessive outpouring of callus is very liable to take place; while, if no fracture has previously been present, vigorous movement is liable so to damage the bone that a similar disaster is likely to follow. The greatest caution is needed when manipulating an elbow in a patient who has recently sustained a fracture through the olecranon fossa, fracture of the anterior part of the head of the radius, or a dislocation of the joint, even though X ray examination reveals no evidence of injury to bone. After fracture of the olecranon, a T-shaped fracture into the joint, or oblique separation of part of the head of the radius, less caution is called for. No special laws govern the performance of flexion, though the existence of the "carrying angle" must be kept in mind; but when extension is limited, two points of paramount importance must be regarded. First, every care must be taken to prevent the head of the radius from being pulled forward. This can be done by exerting backward pressure with the thumb over the head of the bone throughout the manipulation. Then, second, it is essential to note that the movement is performed with due respect to the "carrying angle." Unless this is done the lateral ligaments on the outer side of the joint are sure to suffer severe injury. Full extension should, of course, be secured in full supination. Far better is it to do too little when manipulating an elbow than to do too much.

Radio-ulnar and Wrist-joints.

Manipulation of the radio-ulnar joints requires attention to the fact that the movement at the lower joint differs from that at the upper in so far as it is not a pure rotation. As the lower end revolves from supination to pronation round the head of the ulna, it simultaneously glides forward. It is always well, therefore, to free the antero-posterior movement which is possible at this joint before forcing rotation. This should then be performed with firm backward pressure over the lower end of the radius for supination, and with forward pressure during pronation. The hand on the front of the wrist in this case exerts its pressure over the region of the lower end of the ulna. Unless this antero-posterior movement is secured the posterior ligament of the inferior radio-ulnar joint is liable to suffer severe damage during forcible pronation, and the anterior ligament during supination. If the obstruction is at the upper end of the radius care must be taken lest we inflict injury which will excite callus formation.

The wrist is a difficult joint to deal with as there is so much, as a rule, that requires to be done. The amount of flexion and extension that are possible vary in each individual. It is essential, therefore, to examine the mobility of the sound wrist. Pure ulnar and radial deviation are well marked and often of wide range, but (and this point is often missed) there is a very considerable amount of true rotation possible independent of the radio-ulnar joints. Finally, there is not only the radio-carpal joint to consider, but, even more important very often, there are the joints between the inter-articular fibro-cartilage and the head of the ulna above and the carpus below. In full pronation these joints are, to all intents and purposes, locked; but in supination there should be very considerable antero-posterior mobility. The loosening of these joints is often all that is necessary in order to restore perfect function to a practically useless limb. Unless they are freed no amount of manipulation of the wrist will ever restore freedom of movement or function.

Joints of the Hand.

Manipulation of the hand is a somewhat lengthy process, but it should be possible to do all that is necessary under gas. Yet time is sure to press, and it is well to have a regular routine in mind so that nothing may be missed. The first carpo-metacarpal joint is freed by grasping the thumb and exerting full tension in the long axis of the metacarpal. The digit is then carried into full abduction posteriorly and is swung round into full opposition. Great care is necessary to avoid torsion at the metacarpo-phalangeal joint during the movement. The joints between the bases of the remaining metacarpals are next freed by exerting a posterior pressure on the head of one metacarpal and an anterior on the next adjacent, and then reversing the movement. Each pair is dealt with in turn. Having done this we ensure that our objective has been secured by forming the posterior convex arch which the heads of the metacarpals can assume and flattening it out again.

Digital Joints.

Manipulation of the digits is frequently mismanaged. It cannot be emphasised too often or too strongly that the metacarpo-phalangeal and inter-phalangeal joints are not pure hinge joints. A marked gliding element is present and, unless this is regarded, the posterior ligament and probably both lateral ligaments will be torn during forced flexion. Considering the metacarpo-phalangeal joint as a type, in full extension the base of the proximal phalanx rests upon the extreme distal extremity of the articular surface of the metacarpal. If hyper-extension is possible it rests towards the posterior aspect. In full flexion, on the other hand, the situation of the base of the phalanx has shifted very considerably, and it now rests well down on the anterior surface of the bone. The nature of the manipulation required is now manifest. Little or no attempt is made to *bend* the joint. The digit is grasped firmly and longitudinal tension is applied. Abduction and adduction of the phalanx on the metacarpal are first given in each direction, then rotation is performed with the joint very slightly flexed. The lateralisation is given in full extension, but rotation is very limited in this position and only becomes free when a minute amount of flexion has been added. Then pressure is exerted anteriorly on the head of the metacarpal and posteriorly over the base of the phalanx. Instantly flexion begins. The direction of the pressure over the back of the base of the phalanx alters and tends to follow the base of the bone round the head of the metacarpal until it is exerted directly in the long axis of the metacarpal, when full flexion is reached. The movement should partake far more of the nature of movement of the head of the metacarpal on the phalanx than vice versa. The wrist, of course, should be kept in dorsi-flexion throughout. Extension is performed by reversing the process. In this way only can the ligaments be saved from tearing. At the proximal inter-phalangeal joints the tendons of the interossei are thus saved from damage—an accident which I have seen lead to almost irretrievable injury. Each joint in each digit is treated in similar manner. It is fatal to force full movement if rigidity has been serious or of long standing, or if it is in part the outcome of sepsis. In these cases movement should be performed in each direction just past the "dead point" and no more. Even though the amount of movement gained is minute, still it is enough; and it paves the way for greater gain at a subsequent manipulation. If too much is attempted the last condition of the patient is sure to be worse than before the manipulation. It is hard to avoid doing too much.

The Hip-joint.

The manipulation of the hip should always begin with rotation. This is performed with the limb lying in full extension on the couch. The knee and hip are then flexed simultaneously until the sole of the foot rests on the couch as near to the buttock as is possible, or as near as the foot has travelled after obstruction has been overcome. Abduction and adduction follow in this position. Then the limb is grasped and rotation is again performed in the flexed position, followed by circumduction as the joint is extended. The hip and the first carpo-metacarpal joint afford examples of joints which, when stiff as the result of old-standing osteo-arthritis, offer the most encouraging prognosis in treatment by manipulation. The course of the disease is not altered, but mobility is frequently increased and pain diminished. Needless to say, manipulation performed during the active stages of the disease leads to disaster.

The Knee-joint.

The most satisfactory position for the manipulation of the knee is with the patient recumbent in such a position that the end of the couch can be lowered from beneath the posterior aspect of the limb as far as the level of the junction of the middle and lower thirds of the thigh. The first essential step is to ensure that there is free lateral mobility of the patella. If firmly fixed, a not very severe strain will sometimes suffice to cause a transverse fracture. Flexion is then performed either to the limit of movement or until an adhesion has been felt to yield. A firm grip is then taken by the disengaged hand on either side of the joint just above the two tuberosities of the tibia, and the leg is rotated alternately inwards and outwards as extension is once more restored. Still maintaining this grip to guard the semilunar cartilages, the last few degrees of complete extension are added with firm pressure, so as to ensure the full locking of the joint by the final rotation of the tibia on the femur. Great care should be taken to ensure that there is no sudden jarring when the full extension is reached, otherwise the internal semilunar cartilage is liable to be injured.

The Ankle-joint.

The ankle-joint presents no special features from the manipulative point of view, save only that we must remember that little force usually suffices to effect our object and that the external ligament is very easily sprained. The chief difficulty is that the manipulation is most easily performed if the knee is flexed. Hence the best position for the manipulation is with the leg dependent over the end of the couch, or, failing this, with the patient prone and the leg vertical—a position none too easy to secure under gas. It should be remembered that flexion and extension take place in an unexpected plane—namely, in a position of apparent slight eversion. Dorsi-flexion, moreover, should be performed by tension downwards on the heel, and not by pushing upwards of the metatarsal heads. If we rely on this lever for our force the joints in the anterior part of the foot are almost sure to be strained. There is only slight lateral mobility in the ankle-joint, and this is in acute plantar-flexion. The adhesions that follow a sprained ankle commonly do not yield to manipulation of the ankle only. If the tendon sheaths of any of the tendons that pass from the leg to the foot have been involved, it is usually necessary to add manipulation of the foot-joints simultaneously.

Joints of the Foot.

The joints of the foot when stiff from osteoarthritis afford a worse prognosis as the result of manipulation than any other. Indeed, increase of mobility may yield only increase of pain on walking. On the other hand, if the disability has followed trauma and the joints are free from disease, results are frequently secured only less "miraculous" than those that follow manipulation of a knee, in which mobility has been perfect and the disability limited to occasional pain or sensation of weakness. The ankle should, in the first place, be locked in dorsi-flexion, and the os calcis is then lateralised by a firm grip on the heel. The intertarsal joints are next dealt with by performing a kind of wringing movement of the fore part of the foot upon the hind part. It is not enough to secure eversion and inversion of the foot at the subastragaloid joint; definite rotation (almost pronation and supination) of the fore part of the foot is possible. The base of the first metatarsal is endowed naturally with considerable mobility on the internal cuneiform, and particularly in the directions of dorsi- and plantar-flexion, and attention to this joint will frequently transform a well-nigh helpless cripple into one who can walk freely without pain. The laws which govern manipulation of the joints of the hand all apply with equal force to those of the foot. One small detail is perhaps worthy of notice. It is not uncommon for the "bone-setter" to claim that he cures flat-feet by manipulation. To this extent perhaps he is right—flat-foot in itself is not usually a disabling condition; it is only when mobility between the joints is impaired that pain and disability are present. Otherwise surely every ballet-dancer should be completely crippled! A "bone-setting" operation may therefore cure the pain of an early flat-foot case; it does not cure the condition. So, too, the claim is sometimes made that cases of metatarsalgia can be cured by manipulation. Again there is a germ of truth hidden beneath an unlikely statement. Sometimes it will happen that a patient with this trouble will trace its origin to a definite occasion on which he trod on a pebble, or walked over cobbles in thin shoes. His pain may be that of metatarsalgia; but, on examination, the anterior arch is not found to be "broken" unduly and there is no pain on pressure, only on movement. Then manipulation offers every prospect of cure, as the trouble has originated in a simple traumatic arthritis. Anæsthesia may not be required for the "cure."

Little need be added on the subject of breaking down adhesions that are due to trauma of muscles or of tendon sheaths. The chief thing to remember is that no harm is done by doing too little; severe injury is always inflicted if we do too much. Repetition of the manipulation is also frequently advisable.

TRAUMATIC LUMBAGO.

One word remains to be said concerning the so-called "traumatic lumbago." The victim is not a malingerer, though often he is dubbed as such. The disability is very severe; if the origin is due to adhesions following rupture of a few muscle fibres, the treatment fortunately is easy and usually satisfactory. The patient is given a general anæsthetic, and is placed fully recumbent. The hip of the less painful side is fully flexed into the abdomen and is again placed by its fellow. The process is repeated on the opposite side. Then both hips are flexed together on to the abdomen, flexion of the knee in each instance coinciding with the flexion of the hip. When the anterior surfaces of the two thighs are as far as possible in contact with the abdomen the sacrum is raised well away from the couch. The pelvis is then waved freely from side to side as the extreme flexion is slowly relaxed, and rotation of the spine is performed. When lateral movement is no longer possible without dragging the sacrum from side to side on the couch the patient is placed fully recumbent once more, and the hands are passed round the trunk till they meet in the mid-line behind. Then firm traction is exerted forwards as if attempting to raise the whole weight of the body. A considerable arching of the back is thus secured, and lateralisation is administered as the traction is relaxed and the recumbent position is slowly restored. "Traumatic lumbago" is frequently due to a slight tilting of one ilium on the sacrum. The pain can be relieved almost spontaneously by treating the patient prone. One hand is placed over the region of the posterior superior spine and exerts downward pressure, while the other forcibly pulls the thigh backwards.

The cervical region is sometimes affected in similar manner, or symptoms (neuralgic pains in the back of the head and neck, and even brachial neuritis) may be described in the absence of a history of definite injury. There is no call for anæsthesia for the performance of the manipulations. The patient is placed recumbent, with the head and neck projecting freely over the end of the couch. The head rests upon the manipulator's hands, and the main point that calls for attention is that tension should be given by securing a firm grip either of occiput and mastoid on each side with one hand, or of occiput with one hand and chin with the other—a grip corresponding to that of the collar in ordinary head suspension—before the movements of flexion, extension, lateralisation, and rotation are performed.

At the other end of the spine we meet with that troublesome and often intractable complaint, coccidynia. Sometimes this can be relieved by manipulation, and sometimes it fails. The forefinger must be passed into the rectum, and each joint is then manipulated in turn. In addition to the pure flexion and extension a slight twisting movement should be added. Care must be taken not to be too severe in carrying out the manipulation.

There is no "mystery" in the art of "bone-setting." Certain details require attention and nothing more. We must know what the natural movement of the joint is, we must realise its limits, we must avoid laying any strain whatever on any normal structure—under anæsthesia there is no protective reflex to save it from harm—and all will be well. But under anæsthesia nothing is more simple than to damage normal structures, and then we have to face the unpleasant necessity of dealing with a sprain of our own creation. It is often an easy matter, when administering forced movement without an anæsthetic, to strain severely any muscle that is thrown into reflex protective spasm during the manipulation.

If our object is to relieve pain or secure increased mobility, we have failed if either of these two objects fall short of attainment. In mobilisation under anæsthesia we have very often an excellent example of the fact that in many cases we do not cure, but depend on the patient's voluntary coöperation before the end is achieved. Manipulation will often suffice to cure pain alone, but it is rarely enough to restore movement. After mobilisation the patient must be taught how to improve his mobility as the result of voluntary effort, and without skilled teaching and cordial coöperation the whole procedure may be rendered void and of no effect, for the adhesions will quickly re-form. It is for this reason that severe pain after manipulation should be regarded as an indication of failure. The pain inhibits voluntary action, and without this recovery is well-nigh hopeless. Unless the patient owns up to greater comfort or more freedom within an hour or so of the manipulation, too much has probably been done.

APPLICATION OF PRINCIPLES ENUNCIATED TO TREATMENT BY MASSAGE.

The application of the principles already laid down to manipulation in the massage-room is simple. In the first place, the anæsthesia of forcible manipulation has as its object relaxation of the antagonists that oppose the movement we wish to perform. In massage this place is taken by "active relaxation." As soon as pain is felt this relaxation is supplanted by reflex spasm of the antagonists, which can only be abolished by calling upon the muscles which control the movement to contract. This, of necessity, causes reflex relaxation of the antagonists. In the massage-room, therefore, forced movement should always partake of the nature of assistive movement. Far better is it to assist the action of a muscle than attempt to stretch or tire out its antagonists. There should be no excuse for confounding forced movement with passive movement. The latter can only be administered when the patient's muscles are in a condition of complete voluntary relaxation, and when there is no perceptible obstacle to movement.

The laws which govern the direction in which manipulation is to be given are, of course, identical in the two cases. Only one word is necessary. When applying tension the greatest care should be taken not to let the grasp slip. The grip, in other words, must be very firm. The manipulation must be performed smoothly and with even pressure; there must be no aimless waggling to and fro and no spasmodic jerking. The pressure must be released as smoothly and gradually as it was applied.

In order that the patient may be in the most favourable attitude to contract his antagonists, the position in which he is placed in the massage-room as a preliminary to the administration of forced movement is not always identical with that chosen when the manipulation is to be performed under a general anæsthetic.

Thus, for instance, flexion of the knee is often best performed with the patient on his face, and the foot is often manipulated to best advantage while the leg rests on the masseur's lap. Shoulder and elbow are best treated absolutely recumbent.

AFTER-TREATMENT.

The after-treatment of cases that have been treated by mobilisation under an anæsthetic varies with the condition found. Restoration of function being the objective, active movement must be prescribed at the earliest possible moment. This should be within a few hours of the manipulation, and, if possible, within a few minutes. But all manipulations must be regarded in the light of the infliction of injury. If pathological tissue has been broken down—the picture is far different if it has been severely stretched only—the injury, as a rule, is trivial, and we can proceed apace. If pathological or normal structures have been stretched, reaction varies with the amount of damage done. It may only be very slight. On the other hand, if manipulation has been too vigorous, or if it has been unskilfully performed, then the structures around the joint—ligaments and tendons—and the muscles that control the movements of the joint have suffered injury, which may amount only to slight strain, to sprains of all degrees of severity, until finally we come to the by no means unknown catastrophes, torn muscles, tendons or ligaments, or even dislocation and fracture. Obviously treatment must vary with the extent of the damage done, and this can only be gauged by reaction. To expect a masseur to put a joint through its full range of movement merely because this has been done under anæsthesia is utterly preposterous, unless, indeed, we have the certainty that no strain has been placed on any non-pathological tissue. So rarely, however, is this the case that the full range of movement is rarely attainable for two or three days unless there was little or no previous limitation. Each case must be treated individually, and the laws which govern all treatment of recent injury must be respected.

DENTAL SEPSIS IN CHILDREN:

ITS CONSEQUENCES AND TREATMENT.*

BY F. ST. J. STEADMAN, D.P.H., L.R.C.P., M.R.C.S., L.D.S.

AMONG the many lessons which the war of the past five years has brought home to us is the important fact that the physique of our race is by no means as good as it ought to be; indeed, the Prime Minister, in a speech last year, stated that the physical examination of recruits had revealed an appalling state of affairs. Among cotton weavers, for example, only 19·6 per cent. of those examined were placed in Grade 1. In one day's batch of 59 men, only 3 were found to be in a fairly good physical condition. A struggle for our very existence as a nation, such as that through which we have just passed, brings home to us the gravity of this matter in a way that nothing else can.

The causes of this deterioration of our national physique are doubtless many. Civilisation entails the performance of a large amount of work in a vitiated atmosphere; while diseases such as tuberculosis, rheumatism, and valvular disease of the heart are rife. It is the duty of the medical profession (in which I, of course, include the dental) to determine as accurately as possible where we are at fault, and to strive against those conditions which impair the health and strength of the community.

The Medical Society of London has commenced this investigation, but judging from a report of a meeting held on Nov. 25th, 1918, in which the causes of rejection were classified and in which there is no mention made of dental disease, the Society is, once again, overlooking the commonest cause of deteriorated physique. When we realise the prevalence of dental disease in all classes it is strange that, even to-day, the medical profession does not appreciate its vital effect on the physique of our race. Dr. J. D. Comrie states that of 10,000 recruits 928 had artificial teeth, while another 1120 had lost half their teeth at least, and that a septic condition of the teeth with deposit of tartar and gingivitis was frequently associated with dyspepsia and invariably with a deteriorated physique.[1]

I think it will be generally admitted that chronic disease in childhood, the effects of which spread over a period of years, must have a profound influence upon mental and physical growth. Of all chronic diseases of this character, dental disease is by far the most common, as something like 80 per cent. of the children of the race are suffering from dental diseases.

I assume that we are all agreed upon the tremendous importance to the child of a perfect dental arch; that the best way to combat dental diseases is by prevention with the necessary prophylactic measures, a clean mouth in, and the proper feeding of, the pregnant mother, breast-feeding in infancy, the establishment of proper nasal breathing, and proper diet—a diet requiring efficient mastication. Further, that we are agreed upon the immense importance of early and constant dental supervision, so that caries can be treated early, either by silver nitrate or, when the cavities are shallow and do not involve the pulp, by suitable fillings; that it is generally a reflection upon the parents, and more especially upon the dental adviser (provided that his inspections have been sufficiently frequent) if a pulp is allowed to become infected or if treatment is delayed until infection of the pulp has occurred. I want to emphasise these points because it has been said that I do not believe in the conservative treatment of teeth in children. I want to make it quite clear that I do all I can in my practice to conserve the deciduous as carefully as I do the permanent teeth.

I propose in this paper to deal with the effect of marked dental sepsis on the health of children, and with the treatment of those all too common cases in which the prophylactic and remedial measures just enumerated have not been carried out, and the child has been brought to us with advanced caries in one or many teeth. Moreover, I want it to be clearly understood that I have in my mind the treatment of this sepsis from a broad national point of view. I am not concerned so much with the treatment of the children of the rich, for although, of course, the fundamental principles are the same for both, it is clear that in dental diseases, like all other diseases, there is often one means for the rich and another for the poor. The advice given to a wealthy, leisured mother (who is aided by nurses whose sole work is to look after her children) may be different from the advice given to the busy working-class mother, whose day's work begins when she gets up in the morning and ends only when she goes to bed at night. It is as futile to tell such a mother with five or six children that she must see that they clean their teeth carefully after every meal with a toothbrush, aided by floss silk, as it is for a physician to order the bread-winner of a family, earning £3 a week and suffering from phthisis, to take a 12 months' sea voyage.

The Effects of Dental Sepsis upon Children.

The effects of dental sepsis upon children can be considered under two main headings: (A) General; (B) Local.

(A) *General.*—It was during my work at the Belgrave Hospital for Children some years ago that I first began to appreciate the profound effect that dental sepsis may have upon the general health of the sufferers. When I first took up this work I thought that the pale-faced, tired-looking, under-weighted and mentally inefficient children whom I saw were the result of semi-starvation, due to poverty. One day, however, I happened to notice a mother who had brought such a child to me and who had with her another of her children, who had not this half-starved appearance but who looked healthy and well. Thinking that this marked difference in appearance might be due to favouritism on the part of the mother, I questioned her closely, but found that her treatment with regard to the food of both children was the same. I then looked at the mouths of the two children. My little patient was suffering from advanced caries, with its consequent gingivitis, while the mouth of the other was healthy. I removed the septic teeth from the one, and a few months later it was as healthy in appearance as the other. This very common and ordinary case illustrates very well the effect dental sepsis frequently has upon children. Mental and physical growth is retarded. Pale-faced and anæmic, their eyes have not the normal lustre of healthy children, and they have a tired and sleepy look about them.

Sir J. F. Colyer was, I think, the first to weigh these children before and after treatment, and in a paper read before the Manchester Odontological

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* Read before the Odontological Section of the Royal Society of Medicine, Jan. 26th, 1920.

[1] THE LANCET, Nov. 29th, 1919.

Society on Dec. 6th, 1910, gave the weights of some of the cases he had treated for sepsis. He showed that there is frequently a marked increase in weight, too great to be accounted for by the normal increase of growth. He gave details of the following four cases:—

M. L., aged 4 years 6 months. When first seen was suffering from gastro-intestinal trouble. Teeth removed $\frac{\text{DCBA}\,|\,\text{ABCD}}{\text{ED}\ \ |\ \ \text{DE}}$. In this case the $\frac{\text{E E}}{}$ were not carious and were retained until the $\frac{6\,|\,6}{}$ erupted. This patient lost her gastro-intestinal trouble, and between June 8th and Oct. 2nd, 1909, increased in weight from 2 st. 4 lb. to 2 st. 8 lb. The normal weight should have been 2 st. 8 lb., and the normal increase in four months 1½ lb. This patient increased 4 lb.

W. G., aged 7 years 4 months. Stated always to have indigestion. Teeth removed $\frac{6\text{EDC}\,|\,\text{CDE}6}{6\text{EDC}\,|\,\text{CDE}6}$. The teeth were removed on Dec. 6th, 1909, the patient weighing 3 st. 2½ lb. On Feb. 7th the weight had increased to 3 st. 5 lb. and all symptoms of gastro-intestinal trouble had ceased. The average weight of this boy should have been about 3 st. 9½ lb., and the increase in two months a little under 1 lb. The weight, however, increased in two months 2½ lb.

A. R., aged 6 years 7 months. Complained of constant feverish attacks. Teeth removed $\frac{\text{EDBA}\,|\,\text{ABDE}}{\text{ED}\ \ |\ \ \text{DE}}$. Between December, 1909, and Oct. 23rd, 1910, the weight had increased from 3 st. 5 lb. to 3 st. 10 lb. The feverish attacks had ceased and the child was sleeping and eating well. This patient was about average weight, and the increase in weight about normal.

The rapid increase in weight following extraction is at times very marked.

For example, in his fourth case a boy, aged 10 years 2 months, it was found advisable to remove $\frac{\text{EDC}\,|\,\text{CDE}}{\text{EC}\ |\,\text{CDE}}$. Between June and October this boy increased from 4 st. 6 lb. to 4 st. 11 lb. The normal weight should have been about 4 st. 11½ lb., and the average increase in four months about 2 lb. This child in the period increased 5 lb.

I have weighed a considerable number of children, and have been able amply to confirm Sir James Colyer's results. As he points out, the increase in weight is not always shown. In a few cases there may even be a slight decline. This is frequently traceable to sepsis in other parts—for example, tonsils or nasopharynx.

One of the chief ways by which dental sepsis in children produces this loss of mental and physical growth is by the reduction of sleep. A careful investigation of the history of these cases will frequently disclose that for months and months the child has not slept well. Its nights have been disturbed by pain. This important symptom has to be looked for, as children do not as a rule complain of it. When one considers the effect of a series of bad nights upon oneself, the importance to the child of this lack of sleep can be dimly realised. I wish to emphasise this point with all the power that I can. Its importance cannot be exaggerated.

Some years ago the father of one of my young patients at the Belgrave Hospital for Children took the trouble to find out where I lived to visit me for the purpose of thanking me for my treatment of his son, aged 9. Some 14 months before I had removed his 12 molar teeth, $\frac{6\text{ED}\,|\,\text{DE}6}{6\text{ED}\,|\,\text{DE}6}$. The father told me that up to that time the boy had always been delicate and ailing. He had had many restless nights from toothache and had constantly needed medical care. He was small, under weight, pale-faced, and very backward at school. He had "suffered terribly." A few days after the operation he began to change rapidly. He has now rosy cheeks, looks well, has regained his normal weight, has not once been ill, and has made rapid strides at school. It seemed, as his father said, as though a millstone had been removed from about his neck.

Gastro-intestinal Disorders following on Oral Sepsis.

A common result of oral sepsis in children is gastro intestinal disorders, as evidenced by gastric and abdominal pain, diarrhœa of an offensive character, with much undigested food in the motions, marked wasting, fretfulness, night-terrors, loss of appetite, sleeplessness, and pallor of the face. In treating a case such as this, it would appear to be a common-sense thing to do first to inspect the mouth and to remove any possible source of infection in it before proceeding to treat the stomach; yet many medical practitioners still neglect to do this. In one case of this kind which came under my care, a child, aged 7, had been treated for no less than 14 months by her doctor, who had made only a very cursory oral examination. Indeed, as the child was frequently awake at night with toothache the mother had more than once asked him whether he thought that the condition might be due to the teeth, and whether he thought it advisable to have the teeth treated, but the doctor had replied that the teeth must on no account be removed, because that would injure the permanent ones, and, moreover, would prevent mastication! At last the mother, finding that the doctor's medicines did no good, determined to have the teeth attended to. On examination I found advanced caries with exposure of nearly all the pulps in $\frac{\text{EDC}\,|\,\text{CDE}}{\text{ED}\ |\ \text{DE}}$ with definite chronic abscesses over $\frac{\text{D}\,|}{\text{E}\ \ |\,\text{D}}$. Three or four weeks after the removal of these teeth the child was practically well.

This gastro-intestinal condition is due to sepsis and not to lack of mastication, as proved by the fact that the cases frequently get well very soon after extraction of the teeth, and almost before the gums have healed—that is to say, while the gums are still too tender to allow of mastication upon the teeth that remain. This is borne out, I think, by the most interesting observations of Dr. H. Waller upon dental disease in nursing women. He shows that in many instances in which a breast-fed baby ceases to thrive while still at the breast, the trouble can be traced to sepsis in the mouth of the mother. He gives details accompanied by charts of three cases selected from nearly 200, demonstrating the marked gain in weight of the infants after the extraction of septic maternal teeth.[2]

In these cases it is clear, I think, that the digestive apparatus of the child is unchanged; that the improved health has been brought about by the removal of sepsis in its food. Similarly, as Dr. Sim Wallace points out, anæmia of other than dental origin is liable to be aggravated by the chronic toxæmia and septic absorption which may be associated with dental sepsis.[3] Other chronic diseases, such as tuberculosis, cannot but be prejudicially affected by an insanitary state of the mouth. Typhoid and scarlet fever and other zymotic diseases have been shown by Hunter to be much more dangerous when dental sepsis is present.[4] Further, sepsis from the mouth may be absorbed into the blood stream, giving rise to such diseases as septicæmia or endocarditis.

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[2] THE LANCET, 1916, ii., 785.

[3] Dental Diseases and Public Health, p. 18.

[4] Oral Sepsis as a Cause of Disease in Relation to General Medicine, Brit. Med. Jour., 1904, ii., p. 1358.

(B) *Local.*—Under this heading I include the adjacent parts to which infection sometimes spreads by continuity of tissue. Pharyngitis, tonsilllitis, otitis media, and—much more rarely—meningitis and such-like troubles. Infection may pass down the lymphatics to the submaxillary and cervical glands. Some hold that glands are so commonly enlarged in children that it is not worth while even examining for them. In my opinion, such teaching is absolutely wrong. I think (although I know that I am on controversial ground) that normally the submaxillary and cervical glands are not palpable in children; that if they are, there is sepsis somewhere. Carious teeth frequently produce enlarged glands, as proved by the fact that these glands disappear after the removal of the teeth. At the same time, I am well aware that we see enlarged cervical glands in children with perfectly clean mouths.

Enlarged Glands in Children.

We dental surgeons are apt to forget that these glands drain a very large area apart from the teeth and oral mucosa. For instance, the tonsils, the nasopharynx, the orbits, the skin of the face, the anterior part of the scalp, &c. We also commonly see children with very septic teeth in which the glands are apparently not affected, but as Mr. G. Morgan points out, this freedom from injury to the gland is often more apparent than real:—

> "A gland constantly irritated by micro-organisms from a carious tooth is potentially weaker; it is more vulnerable than a gland not so irritated. This greater susceptibility to injury is shown by the effect of strain on such glands. I think we may take it for granted that a gland becoming tender and remaining for some weeks enlarged from a simple strain is not a healthy gland. Its resisting power has been lowered by having to deal with micro-organisms, perhaps in no great amount, and I think one may say of low virulence, but spread over long periods. A girl, aged 8, coming of a very healthy family and living in a good house, slipped whilst using dumb-bells and strained the muscle of her neck. The next day there were two tender glands a little in front of the right angle of the jaw. The six-year-old lower molar on this side was badly decayed and had been so for a year, yet until the strain there was no sign of enlarged or tender glands. After the strain the glands remained enlarged for several months, and one finally became tuberculous. Glands in the groin will sometimes enlarge from the strain of football, but careful examination of the area of drainage and going into past history will nearly always prove that the glands were not in their normal state at the time of injury. Measles and whooping-cough often play the same rôle as strain—i.e., glands injured by carious teeth, and yet not visibly showing any change, will enlarge more quickly and remain enlarged longer than glands not so injured. I could supplement these cases by others, proving that strain alone does not cause inflammatory enlargement of healthy glands."[5]

It should be remembered that a very slight septic focus in children will often lead to enlarged glands, and if glands are palpable we should endeavour to find the cause. It is true that the glands often rapidly diminish in size after the removal of septic teeth, but they do not always quite disappear. They appear to be fibrosed, and years later, at the age of puberty, they occasionally break out again, and examination may show them to be tubercular. Occasionally these infected glands break down, and the infection is carried to other parts of the body, giving rise, possibly, to tubercular lesions in the bones, or it is even possible that tubercular meningitis may be set up. Mr. J. G. Turner has shown that sepsis in the deciduous teeth not uncommonly leads to damage of the permanent teeth beneath them, as shown by hypoplasia and some of those deformities which have been classed under the term dilaceration, commonest among the premolars and fairly common amongst the incisors. I have examined a number of radiographs of the bone round septic teeth to ascertain whether any rarefying osteitis is to be observed, especially in those cases in which the pulps have died under fillings. I am not able to make a definite statement upon this at present, but hope to bring this point up again on a future occasion.

Lastly, the carious tender teeth by disuse bring about a gingivitis which may spread eventually to the periodontal membrane of the permanent teeth, with all its consequent ill-effects upon the health of the individual. Many of our citizens, owing to neglect of their teeth in childhood, have had dirty septic mouths all their lives, so that we need scarcely wonder at their poor physique.

Such, then, is a by no means complete picture of the possible consequences of sepsis in children and upon the national physique. No doubt one frequently sees children with exceedingly septic mouths apparently in robust health. I have reason to suspect, however, that in some of these cases, at any rate, this robust health is more apparent than real. Then arises the interesting question, What percentage of children with marked sepsis in their mouths have their general health thereby affected? It is a question which I fear in the present state of our knowledge we cannot answer, but one worth trying to solve in the future.

I have treated between 7000 and 8000 children in the way that I am about to describe, but these have been mostly hospital patients; consequently I have only been able to follow up a comparatively small number. Of these I can definitely state that a considerable percentage have shown marked improvement in their general health, and none whose health has been adversely affected by the removal of their septic teeth. The illustrative cases I am giving are merely examples of very many others of the same kind which have come within my experience.

Would that I had the power of a Raemaker in depicting these things graphically! I would draw a picture showing the enormous number of children of our race wrapped in a pall or dense fog, the fog of dental sepsis, retarding their mental and physical development. Drastic treatment of this sepsis is like snatching away the pall or lifting the fog. Normal weight is regained, their eyes once more shine brightly, and the palest cheeks become rosy. These children have been given a chance to grow.

The Treatment of Dental Sepsis in Children.

All deciduous teeth in which the decay is sufficiently advanced to infect the pulp I extract, and generally their antagonists also. I only fill teeth when I feel sure that the pulp is not affected. This condemns at once the majority of decayed deciduous teeth, because the pulps of these are relatively larger than the permanent teeth, so that a comparatively small cavity is sufficient to infect the pulp. By infected pulp I do not necessarily mean an exposed pulp. Many pulps are infected long before the actual exposure has occurred.

I treat the permanent molar teeth in the same way as the deciduous teeth if the roots are incomplete at the time of the pulp infection. I know of no way of dealings with infected pulp in children which I regard as sound. The treatment recommended by many practitioners of sterilising and capping the pulp is, in my judgment, dangerous, as in the majority of cases so treated the pulp eventually suppurates and dies under the filling, and the teeth remain tender and uncomfortable, so that the child's confidence in them is not restored and he does not use them for the purpose of mastication; frequently they ache and he remains with his disturbed nights. The following case which came under my care illustrates these points:—

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[5] Lymph Glands in Relation to the Teeth and Gums, British Dental Journal, August, 1903, p. 522.

[6] Injury to the Teeth of Succession by Abscess of the Temporary Teeth, Brit. Dent. Journ., 1909, p. 1235.

The patient was a boy, aged 5, and was brought to me by his mother on account of pain in his teeth, which caused him to have restless nights. On examination I found he had no less than 11 amalgam fillings inserted into his deciduous molars. Three of these teeth $\begin{array}{c|c} & E \\ \hline E & D \end{array}$ were obviously dead and tender, and pus could be squeezed out from the pockets around them. The gums all round the mouth were inflamed and dirty. It was clear that the child had not used these teeth for the purpose of mastication for some time. The submaxillary lymphatic glands on either side were swollen and tender, as also were the cervical glands on the left side. The mother said the child never seemed well, was always irritable and cried himself to sleep when put to bed, and frequently woke during the night, at such times complaining of pain in his teeth; that he had not had a good night's rest for months, and that he did not care for his food and did not eat enough. The child's general appearance amply bore out his mother's statements. He was small for his age, pale-faced, and his eyes lacked the brightness and intelligence of the normal child. The dentist who filled these teeth had told the mother that nothing further could be done until the child was aged 10 or 11, when these teeth would be shed, and that it was absolutely necessary to retain them for the purpose of mastication. A second dentist had confirmed this opinion. In the face of these opinions of two of my fellow practitioners, I had some difficulty in getting the parents' consent to the immediate extraction of the deciduous molars. Fortunately I was supported on this occasion by the family doctor (more often than not, I regret to record that I have found in him a strenuous opponent). The operation was performed on March 8th, 1913. The effect was startling. On that night and each following night the child slept well; there was no crying out and no restlessness whatever. On April 22nd the glands were only just palpable, and were no longer tender, and the beneficial effect of the good nights on the child was obvious. The pallor of his cheeks and the sleepy, tired look had vanished. The mother said that the improvement in health "seemed marvellous" and the child was "altogether brighter in himself." He was eating well and seemed always to be hungry. This child was not weighed, but it was apparent that he was steadily putting on weight.

The Effect of Extensive Extraction in the Area of Mastication.

The argument against extensive extraction in children, that mastication is lost, is futile. I cannot understand how it is that medical and dental practitioners who use this argument can fail to see for themselves that mastication is already lost. No child will masticate on tender teeth and exposed pulps; but one may actually take up the other line of argument and say that by the removal of tender teeth the area of mastication is increased. An exposed pulp in a deciduous molar means that the child will not masticate on that side of the mouth, so that the important six-year-old molars behind them are not functional; remove the tender tooth and these teeth will be restored to usefulness.

Experience shows that the child regains its normal weight and health after extraction of all septic molars. In other words, experience shows that it is better for the child, if food has to be bolted, that the food be as clean and as uncontaminated by pathogenic organisms as possible. Here, in passing, I would like to point out that if it has been decided to extract the six-year-old molars it is best to do so early, when the child is about 10 years old, and not wait until the 12-year-old molars have erupted, so as to allow these latter teeth to come forward.

If you take 30 children and arrange them in a group, and 10 of these children have all of their teeth present and their teeth and mouths perfectly healthy, and 10 have had most or all of their teeth removed but their mouths otherwise healthy, while the remaining 10 have septic teeth and inflamed gums, it will be easy for the trained eye—aided, if you like, by the weighing machine—to pick out these last 10 children, but it will not be possible to separate the remaining 20.

Effect of Extraction on Development of the Jaws and the Permanent Molars.

Another argument against the extraction of teeth is that it prevents the proper growth and development of the jaws. If the extraction of teeth adversely influences the growth of the jaws it is clear that if several teeth are removed on one side and not on the other, the jaws on the one side from which these teeth have been extracted will show a deficient growth; whereas, the side from which the teeth had not been removed will grow normally, giving the whole face a lop-sided appearance. Experience shows that save in exceptional cases nothing of the kind happens; on the contrary, the jaws still reach their normal development on both sides, in spite of the loss of the teeth on the one side. Or again, if we extract teeth from the upper jaw and not from the lower, it has been said that the upper jaw will not grow properly but the lower will, so that we shall have brought about an "inferior protrusion," or vice versa; but nothing of the kind happens, showing that the normal growth of the upper jaw has apparently not been affected by the extraction of the teeth.

A more important argument which requires attention is that the early extraction of deciduous teeth will lead to the forward movement of the six-year-old molars, thus causing crowding and irregularities of the arch later on. If the teeth are extracted before the permanent molars have occluded, there is no doubt that this will take place, but, provided the patient comes frequently for dental inspection, at the right moment one of the permanent teeth in each corner of the mouth can be sacrificed. These teeth may be either the four six-year-old molars or the four premolars, according to circumstances. If the extractions take place after the permanent molars have occluded, there will be very little forward movement.

Importance of Removing Antagonists.

I have said that I remove, as a general rule, not only the carious teeth, but also the antagonists. The importance of this was brought home to me by a demonstration by Colyer at one of the "At Homes" of the Royal Dental Hospital some years ago. A young child who had one lower deciduous molar tooth missing but all the rest of the teeth present and healthy, was given a meal of soft food (bread-and-butter) and was then given an apple. The eating of the apple mechanically cleansed away all the soft food which remained around the teeth after the meal of bread-and-butter, except that around the tooth which was opposite the place where the tooth was missing. Around this tooth was a soft film of carbohydrate food, and when this was scraped off, a little ring of inflamed gum all around the tooth was seen, due to the frequent lodgment of food. This, to my mind, clearly demonstrates the importance of removing this functionless tooth, for if left it is liable, owing to the tenderness of the gum around it, to prevent mastication and to force the child into the pernicious habit of unilateral mastication. In those cases, however, in which the four lower deciduous molars and the first upper are carious but not the second upper deciduous molars, I leave the latter (in children aged under 6) in position, following the teaching of Colyer, until the permanent molars have erupted and occluded.

I think we do not realise sufficiently the importance of preventing unilateral mastication. It means that on the unused side we shall get a marked gingivitis, and more important still, this habit is liable to become permanent, so that later on, when the permanent teeth have erupted, they quickly become septic also. I am convinced that many cases of periodontal disease can be traced back to tender teeth in the child.

The Expediency of Free Extraction.

There is another argument in favour of extraction which, however, I bring forward with some hesitation—that of expediency. One would, perhaps, hardly be justified in acting upon expediency alone were it not supported by the other and more powerful arguments that I have already given.

Of the 7,000,000 or so children in this country, something approaching 6,000,000 require dental aid. I think if I allow, on an average, one hour's work for each child to do what is required, I shall not be accused of overstating the case. If this work is carried on at the rate of five and a half hours a days, it will take one man nearly 3000 years to complete. This rough calculation will show that we have nothing like enough dental surgeons to get through the work. On the other hand, if we extract all teeth with infected pulps, a tremendous amount of time will have been saved. It is difficult to estimate the beneficial effect this work would have upon the health of the children, and consequently upon the physique of the nation; although it is true we should have a greater number of crowded arches to deal with. A result cheap indeed at the price. Of course, there is no doubt that as the years go on this huge mass of dental work in children will gradually lessen as the teaching of prevention becomes diffused in the schools.

It takes a considerable amount of courage to condemn a large number of teeth in a child. This necessary courage can only be acquired by observing, recording, and pondering over the evil consequences of leaving these septic teeth. A proportion of the dental profession at the present day appears to lack this courage, or have not yet realised sufficiently the great harm they are doing to their patients by leaving septic teeth. Four times during the past six months parents have brought children to me simply and solely because they have heard that I am willing to treat children. One case was a boy, aged 5, in which every tooth in the child's mouth was carious almost down to the gum margin, causing a septic gingivitis and profoundly affecting his health. The father told me that he had taken the child to two dentists and a doctor, each of whom said that nothing could be done. The father told me that common sense convinced him that something could and ought to be done. Removal of all the deciduous teeth has had a very marked beneficial effect upon this boy's health, but will no doubt lead to crowding later on and the sacrifice of four permanent teeth. I have explained this to the parents, but they do not seem to think that this is worth considering in face of the immense improvement in the child's general health, an attitude which I cordially endorse. In another case a little boy was brought to me with a large swelling in connexion with his left lower deciduous molar. A doctor had treated this for eight weeks, stating that the tooth, being a temporary one, must on no account be removed. During this time the swelling on the jaw had become hard and brawny; pus had burst through the skin, and when I came to remove the tooth I found a large piece of necrosed bone at the bottom of the sinus. Had the tooth been removed eight weeks sooner the patient would have been spared permanent disfigurement.

The Treatment of Children.

It is true that a considerable number of dentists do not wish to treat children. It is not given to everyone to have the patience and tact that is necessary to deal with young children, but if a practitioner has not these qualities he should manfully recognise the fact and send children to those who will undertake their treatment.

The ignorance of a small but harmful minority of medical practitioners concerning dental matters is, without exaggeration, nearly as great as that of the general public. These men cannot yet appreciate their own ignorance and sometimes give advice on dental matters, which is not only wrong but often positively extremely harmful. Progress is being made, but it is slow. In the war against dental disease and its train of consequences, in the effort to snatch off the pall and clear away the fog of sepsis which envelops our children, I have sometimes thought that these medical practitioners are like evil spirits, doing there utmost to prevent the clearance of that fog. On more than one occasion when I have urged the removal of abscessed teeth which are keeping their possessor awake night after night with pain, besides causing severe general ill-health, the medical adviser has stepped in and said that nothing must be done to the teeth until the child's health has improved. It is difficult to follow what is in the mind of the giver of such advice. What would one say if, when his house was burning, the firemen told him that they must wait until the heat had cooled down a bit before they commenced to put it out?

Lastly, I would like to emphasise one more point, which I consider very important—namely, that if extensive extraction has been decided upon, it should be carried out at one time under one general anæsthetic such as ethyl chloride. In this way we put much less strain upon the nerves of the little patients. In one case which came under my observation a dentist had condemned 12 septic teeth and proceeded to remove them, one at a time, under gas. After five teeth had been removed in this way the child's nerves had been shattered. I can see no great objection and very little risk in removing all that are necessary at one operation.

PAUCHET'S METHOD OF GASTRECTOMY.

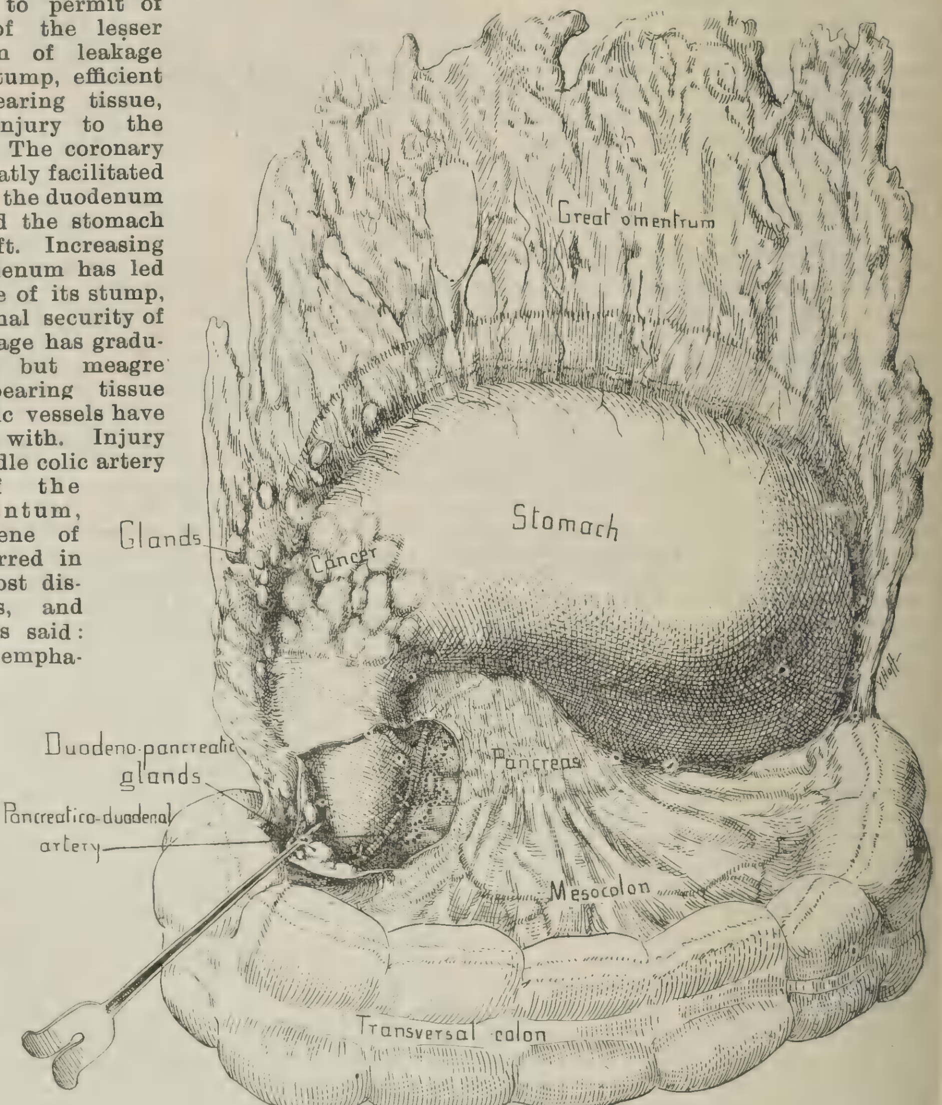
By IAN MACDONALD, M.D. Edin., M.D. Paris.

In cancer of the stomach competent surgeons have insisted that the radical operation should always when possible be performed. In their expert hands wide pylorectomy shows a steadily diminishing mortality and in many cases offers a reasonable prospect of cure. Should the operation prove only palliative the comfort of the patient is greater than if left with his tumour after a simple gastro-enterostomy. If, then, gastrectomy can be simplified, it will be more often performed, and the easy short-circuiting operation will be reserved for the limited number of cases in which it is useful. The principal technical difficulties of resection in cancer are high ligation of the coronary artery to permit of adequate removal of the lesser curvature, prevention of leakage from the duodenal stump, efficient removal of gland-bearing tissue, and avoidance of injury to the middle colic artery. The coronary ligature has been greatly facilitated by leaving it till after the duodenum has been divided and the stomach swung over to the left. Increasing respect for the duodenum has led to very careful suture of its stump, and with the additional security of an omental flap, leakage has gradually become rarer; but meagre removal of gland-bearing tissue and danger to the colic vessels have still to be reckoned with. Injury or ligature of the middle colic artery during division of the gastro-colic omentum, resulting in gangrene of the colon, has occurred in the hands of the most distinguished surgeons, and as one of them has said: "It is impossible to emphasise too strongly the need for care and caution in this matter." The initial step in Pauchet's method of gastrectomy ensures the integrity of this vessel and provides fully for removal of infected gland tissue. The steps of his operation are as follows:—

Technique of Pauchet's Operation.

1. *Omental colic separation.*—Pauchet applies the technique used in France by Lardennois and Okinczyc as the first stage in colectomy to the surgery of the stomach. The great omentum and transverse colon are lifted out of the abdomen through a median incision above the umbilicus. The line of attachment of the omentum to the colon is shown by a series of most delicate vertical pleatings. The assistant, lifting up the great omentum with his right hand, on the flat of which rests the spread-out omentum, with the left gently pulls the colon downwards. The operator, holding the omentum in his left hand, passes the point of a very sharp knife along the pleated attachment, beginning this fine bloodless dissection well over towards the left of the patient. The cleavage area soon appears and is enlarged within a compress. Commencing on the colon, it continues along the mesocolon, through an avascular space bounded below by the transverse mesocolon, easier to define as the separation goes farther back to where the mesocolon is implanted on the posterior abdominal wall. The omentum can finally be thrown upwards with the stomach, leaving the posterior surface of the stomach, the pancreas, and the superior surface

Fig. 1.



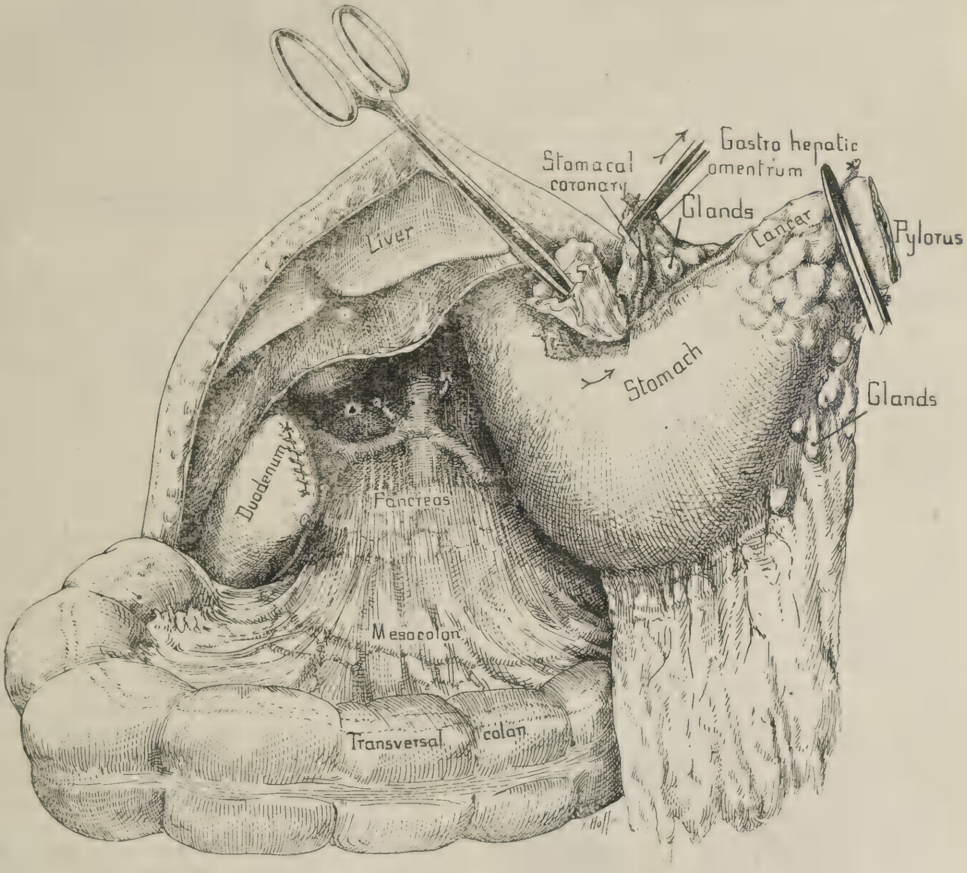
The illustrations were prepared in France.

The lesser sac has been opened through the omental colic separation to explore the posterior surface of the stomach and duodenum. The great omentum is thrown upwards, and its avascular attachment to the anterior surface of the colon has been freed by a knife; this dissection was begun as far as possible towards the left. The posterior relations of the stomach are fully displayed. The tumour and glands are separated from the transverse mesocolon and pancreas; the pancreatico-duodenal artery is defined and ligatured. This stage is performed by gauze dissection, the director, or bistoury, includes also the freeing of the middle colic vessels in the transverse mesocolon and separation of the glands, all of which should remain attached to the stomach. Dotted lines on the pancreas show the situation of the glands removed.

of the transverse mesocolon in full view. The transverse colon is replaced in the abdomen and the transverse mesocolon, pushed down with it, carries the middle colic artery out of danger.

2. *Freeing of the stomach, the tumour, and glands.*[1]—As the omental colic separation continues the stomach is carefully detached from the pancreas, using the knife or a compress to strip upwards any glands now forming one mass with the stomach. The line of cleavage, having freed the stomach from the pancreas, is then prolonged well towards the right, separating the omental layer with care from the underlying transverse mesocolon as the duodenal region is reached. Here a director is passed under the stretched-out omental edge, leading the cleavage line under the serous attachment of the duodenum, which is thus mobilised, freed, and pushed upwards. During this last step the right gastro-epiploic artery and pancreatico-duodenal artery lying in the angle between the pancreas and duodenum can be secured. With the mobilisation of the serous layers over the duodenum the peripyloric and duodeno-pancreatic glands are freed, and carried upwards towards the block of tissues formed by the stomach and tumour, which is grasped in the operator's left hand. Still using the director and knife, the already cleared space on the antero-external aspect of the duodenum is continued round posteriorly, the intestine being cleared as "if it were an artery."

FIG. 2.



Clearing the lesser curvature of its glands. The coronary artery has been ligatured and divided by a knife between the ligature and a Kocher's forceps which draws the vascular pedicle towards the left. The remainder of the gastro-hepatic omentum is divided by a knife, and the incision passes on to the muscular coat of the stomach. The lesser curvature is cleared by gauze.

3. *Section of the duodenum and ligature of the coronary artery.*—The denuded duodenum, grasped in a crushing clamp and divided, is closed by a parallel suture whose loops pass over the clamp. Some extra sutures are placed over the first line, and an omental flap adds further security to the stump. The pyloric artery is ligated and the gastro-hepatic omentum divided as near the liver as possible. The stomach is then swung over to the left, and the assistant retracting the liver with a Doyen's retractor, the operator places the coronary ligature as near the origin of the vessel as possible.

4. *Clearing of the lesser curvature.*—Pauchet performs this important step by placing a Kocher's forceps on the coronary pedicle a short distance below the liga- forceps stretches upwards the part of gastro-hepatic ture. With a sharp knife he divides the arterial pedicle close to the forceps, the incision passing right on to the serous coat of the lesser curvature. Traction on the omentum still attached to the stomach with its contained glands. With the blade of the knife on the flat, by a gentle scraping movement from above downwards, the serous coat, vessels, and glands are detached from the lesser curvature, traction on the forceps aiding their separation. The stripping of the curvature ceases where it is decided to cut the stomach across.

5. *Removal of the stomach and gastro-enterostomy.*—A crushing clamp, de Martel's or Payr's, is placed across the stomach, and the diseased portion distal to the clamp is cut away by the thermo-cautery. A continuous linen suture, its loops passing over the clamp, is rapidly placed along the gastric section, the clamp is loosened, and the suture drawn tight in the same way as the duodenal suture, the stomach being thus closed by a purse-string suture. Probably some surgeons would hesitate to confide the gastric section to the infolding suture over the clamp, and would prefer doubly to suture the stomach after removal of the crushing clamp. Gastro-enterostomy is then performed on the posterior or anterior surface of the stomach with a short loop of jejunum brought up through the mesocolon. If the gastric stump is very small Pauchet sometimes employs the Murphy button for the anastomosis, or unites the jejunal loop laterally to the section of the stomach after the Polya method.

Advantages of Omental Colic Separation in Gastric Operations.

Pauchet holds that omental colic separation, the first stage of this procedure, should be systematically used in many gastric operations, as it simplifies them considerably. He sums up its advantages as follows.

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[1] Traitement Chirurgical des Maladès de l'Estomac. Atlas de 50 pp. et 90 figures. 1919. Paris: Maloine éditeur, 25, rue de l'Ecole de Médecine. Par Victor Pauchet.

1. The recognition of ulcers or other lesions which may pass unnoticed in mere superficial examination.

2. The possibility of dissecting with the greatest precision ulcers and cancers adherent to the pancreas or transverse mesocolon.

3. In cases of cancer, the greater facility in freeing the chain of glands which lie along the terminal portion of the greater curvature, the lower aspect of the pylorus, and the first portion of the duodenum.

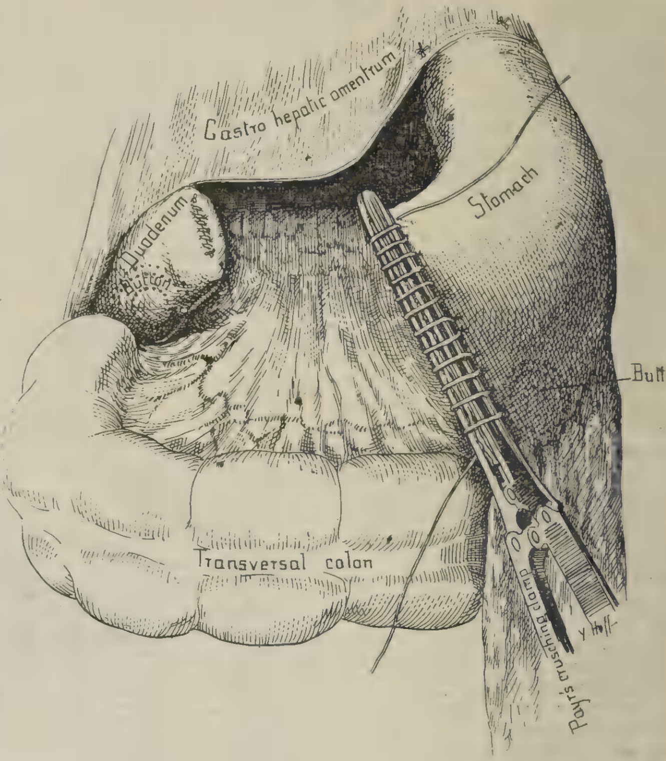
4. Further, in cases where the surgeon may decide definitely to resect the mesocolon if invaded also by the growth, the most simple and rapid method of removing the zone of the transverse colon irremediably deprived of its blood-supply by the ligature of the mesocolic vessels, is to extend the omental colic separation round the hepatic angle of the colon as in "mobilisation" of the colon, the usual procedure in removal of the cæcum and ascending colon.

The terminal ileum is then anastomosed to the transverse colon where its vascular supply is assured.

Gastrectomy performed by this method can be rapidly executed, and in cases of non-adherent pyloric tumours becomes a comparatively simple operation, due largely to clarity of anatomical detail. In our gastric work with Dr. W. A. Mackay we have proved the value of omental colic cleavage. In gastro-enterostomy the abolition of the loop revolutionised that operation, banishing the nightmare of the vicious circle; in gastrectomy this exsanguine proceeding has, more than any other factor, facilitated our resections both in malignant and benign disease.

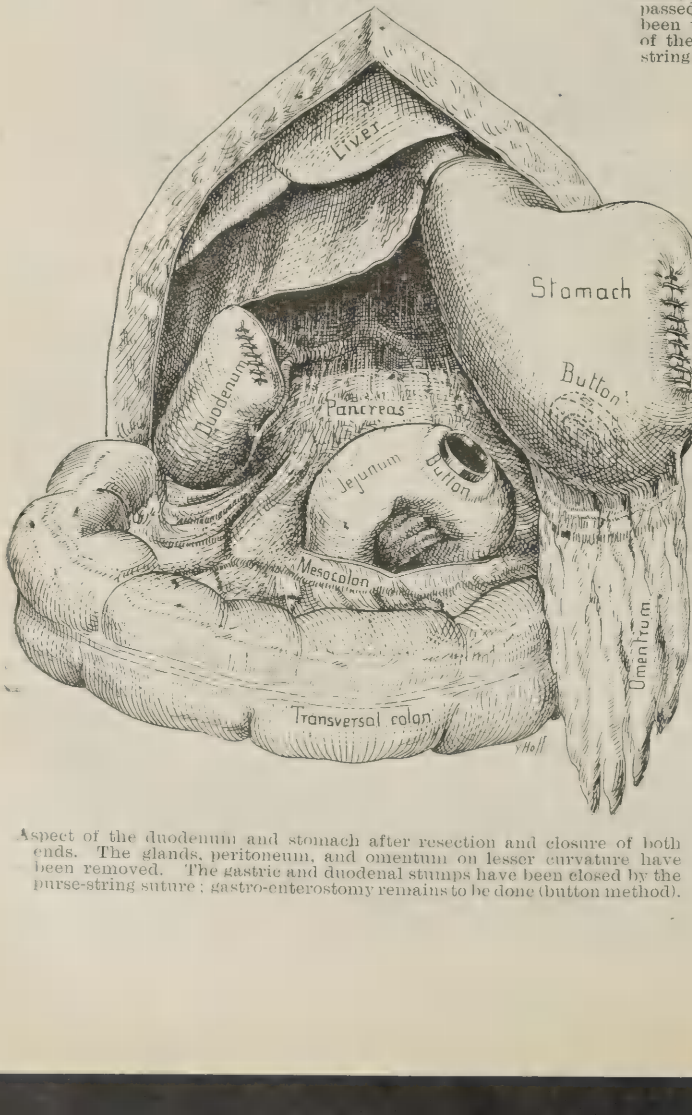
Huelva, Spain.

FIG. 3.



Closing the stumps of the duodenum and stomach. The stomach, grasped in a crushing clamp, has been divided along the clamp, over which a continuous suture is passed. The crushing clamp of the duodenum has been withdrawn; traction has been made on each end of the suture, and the duodenum is closed by a purse-string suture.

FIG. 4.



Aspect of the duodenum and stomach after resection and closure of both ends. The glands, peritoneum, and omentum on lesser curvature have been removed. The gastric and duodenal stumps have been closed by the purse-string suture; gastro-enterostomy remains to be done (button method).

BRISTOL AND THE ENDOWMENT OF RESEARCH.—The Committee of the University Colston Society, Bristol, is going to resume its custom of holding an annual dinner and of making a collection there for the benefit of the Colston Research Fund. Both dinner and collection fell into abeyance during the war, but it is to be hoped that the Fund will not merely come to life again, but that it will also reach a far higher figure than heretofore. So far it has never amounted to more than about £500—a useful beginning, but no more than a beginning. The President for the year is the Bishop of Bristol, the President-elect Alderman Frank Sheppard, a much-respected Labour leader. Bristol University is the only one with a fund of this character to stimulate its work, and the value of an incentive to research is considerable.

A CASE OF

HYDATID INFESTATION OF BONE, WITH MULTILOCULAR HYDATID DISEASE.[1]

BY C. E. CORLETTE, M.D., CH.M. SYD.,
SURGEON TO THE SYDNEY HOSPITAL.

Hydatid disease has not lost its interest for us in Australia. It still kills people. It still furnishes problems of many kinds. And we are still finding new matter for study, from which we can reach forward to some new knowledge, and by which we can test the value of current views. The case here recorded, I think, represents an instance of this.

H. H., male, aged 65, from the Coonamble district, New South Wales, was admitted to the Sydney Hospital on Nov. 2nd, 1918, complaining of pain in the right thigh and hip and a swelling of the same thigh, said to have existed for eight years. Eighteen years ago he had had pneumonia, but, with this exception, had apparently enjoyed ordinary health up to nine years ago, when a horse fell on the limb. It was said not to have been broken, but he had been lame ever since. Three years later he was run over by a cart, when the limb became very swollen. The swelling was incised at the time and had never entirely disappeared. The patient had walked with a stick for several years, and for the last five years had been subject to attacks of stabbing pain in the thigh and buttock. Twelve months ago he noticed the appearance of a small swelling in the groin, and three months later a larger swelling appeared below the inguinal ligament.

Present condition (Nov. 2nd).—Lies with right leg everted, and is unable to rotate it inwards. The right lower limb is 15 cm. shorter than the left. There is a large, uneven tumour, smooth in contour, most prominent above and internally, and projecting there about 2 or 3 cm. It extends downwards from the inguinal ligament in the femoral region to near the junction of the middle and lower third of the thigh. It is not tender on pressure, elastic, but not fluctuating. In the inguinal region is a further large swelling, which is soft and elastic to touch and gives an impulse (?) on coughing. The swelling fills up the inguinal canal and is reduced in size by pressure. Over the most prominent parts of the swelling the skin has a dusky red, congested appearance. Behind, a large, tense, elastic tumour can be felt below the gluteal fold. The muscle of the thigh is considerably wasted, and the upper portion of the thigh is disproportionately large as compared with the lower part. On palpation of the abdomen a large elastic mass can be felt outside the lateral border of the rectus, extending up from the inguinal ligament to the right costal margin. It is not tender except to a slight degree in the angle between the twelfth rib and the sacro-spinal muscle. The area of the mass is dull to percussion, and it is continuous with the liver dullness above.

The arteries are thickened, the heart sounds distant, and the second aortic sound accentuated. The only note about the respiratory system is that the patient suffers from a cough.

A radiographic examination was made, and the plate showed fracture of the right femur at its upper extremity, with appearance suggesting a new growth. There was great enlargement of the bone. The shadow of the ilium was faint and ill-defined and showed irregular defects of calcification.

Operation.

On Nov. 6th, under anæsthesia, a small incision was made over the upper of the two tumours in the region of the groin. Immediately a large quantity of a soft, mushy material, of granular consistency, and somewhat resembling boiled milk-sago, flowed out of the opening. A close naked-eye examination showed that it consisted of enormous numbers of minute hydatid cysts mixed with apparently granular material. (These granules were found later on to be more minute hydatid cysts, of microscopic dimensions.) The material, therefore, consisted of a pultaceous mass of closely packed hydatids. A finger was then inserted and a large cavity was discovered containing several sacculations, dividing it up into loculi. Somewhere on its mesial wall a small opening was found, at first not large enough to admit the finger. This opened out into another large sacculated cavity, extending downwards into the femoral region, and dipping deeply into the adductor side of the thigh, but subcutaneous in its anterior portion. Both these cavities contained also numerous small pieces of friable calcified deposit, one or two pieces being as large as the terminal phalanx of a finger. These pieces were obviously not bone. From beside the first cavity a small, separate sac, about as large as a walnut, was dissected out entire, and found to contain the same material as the cavities first opened. There was no trace of any mother-cyst. The cavities were washed out with saline solution, and the wound closed without drainage.

The wound looked well and matters went on all right for a week, but it gaped again, unhealed, when the sutures were removed. Immediately enormous quantities of the same soft, sago-like material began to pour out. The tense, elastic tumour behind disappeared and its site became soft and lax. The edges of the wound showed some redness, the temperature rose somewhat, though not very high. On the tenth day a few blood clots began to exude from the opening, and continued to escape till the patient died, on the twelfth day. The apparent hæmorrhage was not very large. The sago-like discharge continued to the last.

Post-mortem Examination.

The cavity opened up at the operation was found to intercommunicate with other larger and smaller loculi around the upper part of the femur, and these again with other cavities passing up behind the iliac bone and through erosion-holes and also via the obturator foramen into the pelvis and thence upwards. The swelling which had been noticed behind the hip, below the gluteal fold, belonged to a very large cavity extending up over the dorsum ilii. It was found at the post-mortem examination that this contained, together with the material which has been described, a large quantity of blood-clot. It seemed that the chief bleeding had occurred in this cavity, and that it might be explained by rupture of a large vein on relaxation of the hydrostatic pressure as the hydatid material drained away.

The large mass noted on the right side of the abdomen was found to have been produced by an enormous ramifying cavity reaching from within the pelvis up along the general course of the psoas as high as the liver, but not invading this organ or the kidney. The cavity was mesial in relation to the kidney and partially covered it.

Bone lesions.—As for the bone, the right side of the pelvis was eroded everywhere, and its skeletal structure was reduced to a fretwork, or network, of thin bone. The acetabular cup had vanished, and with it had vanished the head of the femur. (Fig. 1.) Through the perforation extended a large branch connecting the upper cavity with the cavity in the femur. The neck of the femur was tunnelled by this, so that only the cortical part survived. The tunnel opened into a large gap at the top of the shaft of the femur, the trochanteric part of the bone being very widely expanded around it. The cavity here became continuous with the loculi around the femur and the dorsal surface of the ilium. The congeries of intercommunicating cavities from above the kidney down into the upper part of the thigh, notwithstanding all the drainage that had been going on, still contained several pints, perhaps several quarts, of the characteristic, creamy-white, mushy agglomeration of tiny hydatids that had oozed out at the operation. But they were not all so small. There were larger cysts, though few in number, measuring up to 2 cm. in diameter.

In addition to the system of intercommunicating cavities on the right side, other separately encapsuled accumulations of the same material were discovered at the post-mortem examination. One was a very large sac lying in the soft parts of the left thigh, mainly posterior. It reached from the level of the upper end of the bone above nearly to the popliteal space below. Another was a sac between the spleen and the diaphragm, the top of the spleen forming its floor, and the under surface of the diaphragm forming its roof. This accumulation was about the size of a small orange. It will be remembered that still another small separate sac was removed entire at the operation.

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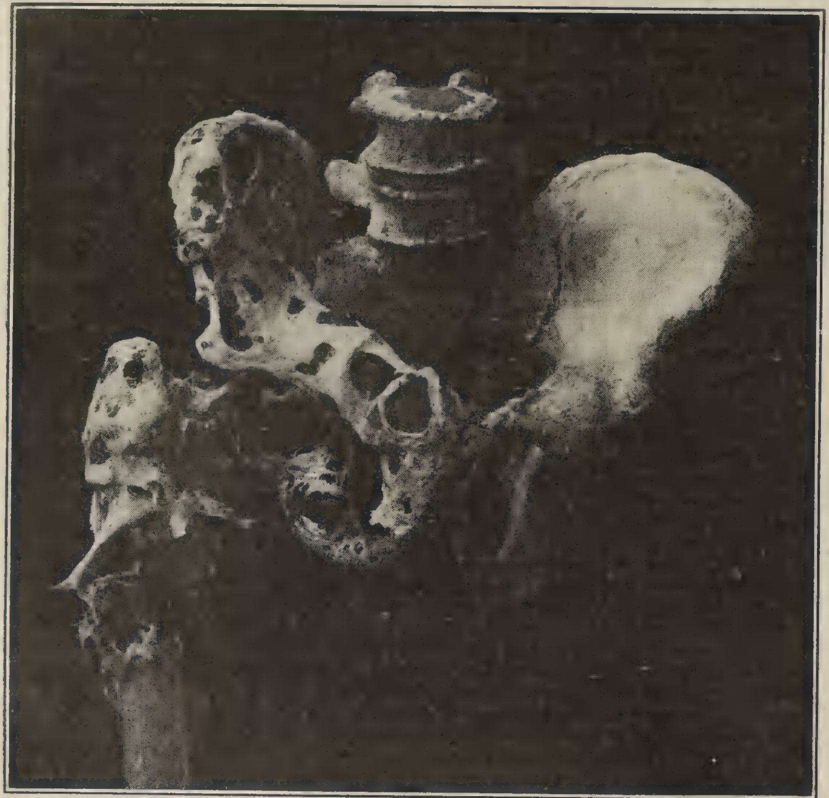
[1] This is an abridgement of an article which appears in full in the Australian Medical Journal.

Kidneys and liver.—The kidneys and liver were entirely free from any sort of hydatid growth or deposit. So was the left lung. But the right lung presented a very remarkable appearance. The whole of the apical part looked like marble, giving the impression that a series of small hydatid cysts were lodged beneath the pleural surface. At the lower margin of the upper lobe another hydatid mass could be seen, about the size of a pigeon's egg and elastic in consistency. This was incised and found to contain a densely packed mass of crumpled-looking hydatid membrane, cutting like a solid jelly. No free fluid exuded from the section, and there was no sign of an enveloping mother-cyst. No further cut was made in the fresh tissue, but it was put into hardening fluid for examination later on. As it turned out, this was a pity, for it spoiled the prospects of a good photograph. There were no pleural adhesions.

FIG. 1.



Hydatid infestation of bone, showing the right os innominatum and the upper end of the right femur expanded in the form of a thin bony network.

Lung.—The hardened lung was sliced up on Feb. 3rd, 1919, and an extremely interesting condition presented itself—no less than a multilocular hydatid of the lung. (Figs. 2 and 3.) The marbled appearance seen at the apex was not due to separately embedded hydatid cysts, but to digitations of an infiltrating mass of crumpled hydatid tissue. At the apex the mass was distinctly more cystic and less solid than at the lower aspect of the lobe, and there were larger cystic formations, but all irregular and crumpled. Separate cysts could not be isolated from one another, but there were a few isolated small-sized cysts lying outside the main mass and enveloped by normal-looking lung tissue. There was distinct mineralisation of a few of these outpost cysts, none of which was larger than grains of wheat, but all quite as hard. It could not be said that the main mass was appreciably calcified. The main mass extended through the lobe from its lower surface up into the apical portion. Serial cuts showed its continuity, though in the middle part it showed less prominently and seemed to be more mixed up in the connective tissue framework of the lung. It might be said that the whole existed as a somewhat sinuous formation of densely packed hydatid substance, about the thickness of a finger in its middle and expanding towards the apex and base of the lobe. The apical part was digitated, not, however, by connective tissue framework, in such a way that it might be compared roughly to the contour of a moderately distended kidney pelvis.

The brain, unfortunately, was not examined.

The vertebral column in the lumbar region was sawn through, and the part below was removed with the pelvis and femur for maceration and preparation as a museum specimen. The bony fretwork which represented the right side of the pelvis was so delicate and attenuated that, in spite of every possible care, some breakages occurred.

The prepared specimen is shown in the excellent photograph. (Fig. 1.)

Microscopic Examination.

I made a microscopic examination of the sago-like material from the bone cavities, &c. In the first place there was a large quantity of granular debris. The tiny grains, down to dimensions smaller than were distinguishable by the naked eye, were seen to consist of small hydatid cysts with the characteristic striated cuticle. Some of the larger cysts were also examined in the same way. In no case were any scolices or hooklets detected.

Microscopic examination of sections of the lung lesion showed that the whole tract was infiltrated with hydatid material. The hydatid membrane had fallen away from the adventitious investiture in most cases, leaving gaps in some of which shrivelled masses of hydatid membrane could be seen. The largest lacunæ of this sort were in the apical portion. In the intermediate portion the cysts were grouped in numbers of small masses close together. Here they were mostly of very minute size, much smaller than could be separately distinguished by the naked eye. Fine fibrous trabeculæ separated the groups into loculi. Many of these trabeculæ had been cut by the section knife. The normal tissue of the lung lay adjacent to these infiltrating masses of tiny hydatids without any very remarkable walling off. Around the apical masses small-cell infiltration was more noticeable, but in the intermediate part there was neither excessive development of fibrous investiture nor other evidence of great reaction. There was certainly nothing to give confirmatory evidence of the violent tissue reaction which Melnikow-Raswedenkow[1] has described. Neither scolices nor hooklets were discovered.

Remarks.

The case is of special interest because of the unusual combination of lesions in bone and in soft

tissues. One of the arguments against the theory that cystic and multilocular hydatid disease are caused by the same parasite is the comparatively small size of the cysts in the latter. Virchow[2] suggests that the limitation of free growth by the pressure of Glisson's capsule, or of bone, might account for this difference in size. This suggestion would not apply to my case, where the cysts were small, even in soft tissues, but since they were frail and delicate, rupturing at the slightest violence, the churning up of the mass as the patient moved would certainly account for the bursting of the larger ones. Moreover, with such a prodigious number of individuals massed together in the closest contiguity there would also be nutritional difficulties, and the limitation of food-supply would interfere with growth. It is probably a similar cause that keeps the daughter cysts within an ordinary hydatid small.

Again, according to Davies Thomas,[3] the channel adopted by the hydatid embryo from the portal system to the bone is probably that of an embolus through the heart into the systemic circulation. However, another method of hydatisation (if I may coin such a word) is the infection of the peritoneal cavity by rupture of a fertile cyst into it. I have on one occasion removed a small hydatid cyst from the subcutaneous tissue of the abdominal wall. It is conceivable that the rupture of such a cyst, if fertile, might cause liberation of scolices, some of which would enter the general circulation through the venous channels, though most of them would probably enter lymphatics. The analogy of fat embolism (Caldwell and Huber[4]) should be remembered in this connexion. I consider

FIG. 2.

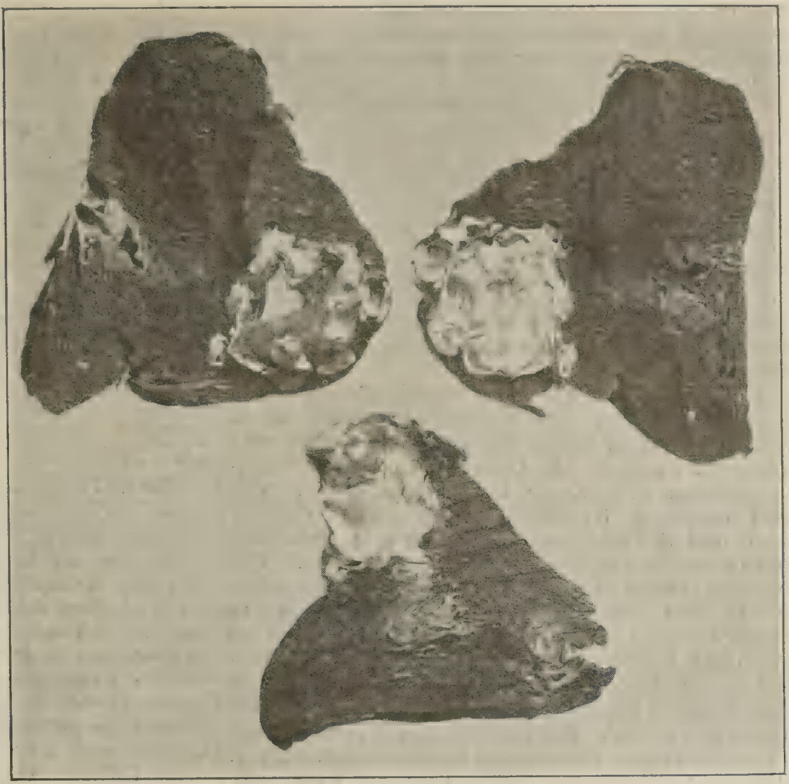
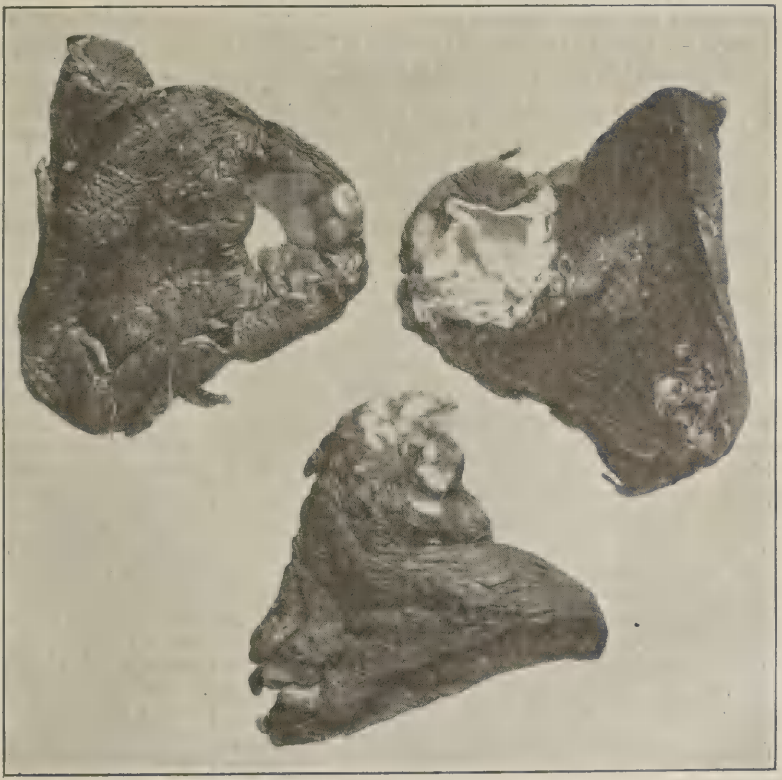


FIG. 3.



FIGS. 2 and 3.—Multilocular hydatid of lung.

The figures are from photographs of a series of sections of upper lobe of right lung of H. H. In each figure the apex of the lung is directed towards the centre. Observe the appearance of the anterior aspect of the apex (in the holed specimen), where a crowded mass of hydatids was bunched so as to give a marbled appearance to the fresh specimen. An examination of the sections will show how the infiltrating mass of hydatid material traces an irregular sinuous course through the substance of the lung to the base of the lobe, where it expands to form a larger mass of crumpled up and tightly packed hydatid material. Most of the infiltrating mass consists of closely set cysts of minute size, set in an irregular connective tissue stroma, and in close relation to normal lung. The rest of the lung shows a few spots indicating small outlying cysts, but is otherwise healthy.

that in my case the bone lesions, which had given rise to symptoms of many years' duration, were likely to have been present before the lung lesions, and that in the latter we have an embolic multiple metastasis reaching the lung through the blood stream.

If medullary fat can enter the circulation when vessels are torn and kept unsealed, so might minute embryonic components of the parasitic mass, and possibly even tiny cysts, gain entrance to the venous current and be carried to the lung in a swarm. A very close seeding of a portion of lung with embolised embryonic hydatids or tiny cysts would presumably be enough to create an agglomeration answering the description of a multilocular hydatid; this hypothesis could probably be tested experimentally by intravenous injections into animals.

As to Melnikow-Raswedenkow's[1] theory of a separate parasite, his biological work is so imaginative as to make me suspect that he may have seen some of his facts through the distorting medium of a ready forged hypothesis. The cases recorded by Stirling,[5] Poulton,[6] Watson,[7] Hahn, and Stirling and Verco[8] seem to link bone hydatid securely to the common cystic form. The condition found in the lung of my case, after taking into consideration the difference in the structure of the organs attacked, allows no reasonable doubt of its identification as a multilocular (or alveolar) hydatid formation strictly comparable to the descriptions of the same disease affecting the liver. But in the same person existed an equally typical example of bone hydatid. Thus, since each of these conditions is an extremely rare phenomenon, the identity of the parasite causing each lesion is practically demonstrated, and the inference may reasonably be drawn that multilocular hydatid disease of the liver is also produced by the same kind of parasite.

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WAR ŒDEMA IN TURKISH PRISONERS OF WAR.

BY J. I. ENRIGHT, M.B., B.A. N.U.I.,
CAPTAIN, R.A.M.C.

IN the autumn of 1916 I became attached to No. 2 Prisoners of War Hospital, Cairo. As I had been resident only a few months in the East my knowledge of tropical medicine was very slight; and on taking up duties at this hospital I was immediately confronted by clinical manifestions of diseases previously unknown to me.

Dr. A. D. Bigland[1] had made a careful study of the œdema cases occurring in No. 2 Prisoners of War Hospital, Cairo, up to July, 1917, when he was unfortunately compelled to relinquish his work. From that period onward I took up the threads and continued his work.

I propose to give a short summary of the principal features observed in connexion with 54 cases out of some 300 that came under my notice, dwelling particularly on the character and distribution of the œdema. The general condition of all the patients was bad. They were weak and emaciated. Some were so feeble as to be unable to sit up in bed without assistance. There was marked pallor, and diarrhœa was invariably present. They showed a general disinclination for food, and, in fact, seemed to have lost all power of assimilation, as evidenced by the presence of undigested food material frequently seen in their stools.

I shall not attempt to give an accurate account of their previous history, as the majority of them were so vague in their replies that little credence could be placed in their answers. However, a good inference as to what diseases they had had can be gained from a scrutiny of the diseases concurrently present as shown in the table.

Total number of cases 54

Pellagra	47	Pulmonary tuberculosis ...	1
Dysentery	27	Pellagra and dysentery... ...	24
Malaria	15	Pellagra and pulmonary tuberculosis	1
Diarrhœa	19		

Thus, it is seen that the most commonly associated malady is pellagra, which is present in a large majority of the cases; whilst if we regard dysentery as being elementarily diarrhœa and include its occurrence under the head of the latter, we find that diarrhœa also occurs in very many cases. The malaria incidence was probably much higher than as shown in the table. As the diagnosis of the condition was based principally on the presence of a large spleen, which could not always be palpated with certainty, especially when ascites was well developed, malaria was in all probability overlooked in many cases.

Hence we may surmise that pellagra, dysentery, and malaria were the most commonly occurring antecedents of this extraordinary œdema, and presumably filled an important rôle in its ætiology, which shall be discussed later.

Distribution and Character of the Œdema.

The mode of onset varied. Usually it was gradual, first manifesting itself as œdema of the feet and afterwards slowly spreading to other parts until it finally terminated in general anasarca. More rarely, cases of massive and generalised œdema were seen to supervene comparatively suddenly. Two such cases occurred in a few days. The œdema was progressive. Despite rest in bed and appropriate dietary it continued, and was apparently in no way influenced by treatment. As previously noted, frequent tapping of the cavities was necessary, as there was a great tendency to fresh formation of fluid. I remember one patient whose pleural cavities and abdomen required aspiration weekly. He had severe abdominal pain and dyspnœa, which were usually relieved by withdrawal of the fluid.

However, even though many cases resulted in general anasarca, exhibiting huge œdema of the lower limbs with marked pitting, ascites, pleural effusion, œdema of scrotum and penis, and swelling of the face and entire back, others had the œdema more or less circumscribed. That is to say, the condition began and remained as œdema of the feet alone or as an ascites. A common combination was that of the face and lower limbs. In most cases swelling of the uvula was noted, whilst two cases had superficial œdema of the abdominal wall.

A point of great interest was the appearance in a few of a discrete subcuticular hæmorrhagic rash in association with œdema of the legs, which were rather indurated and painful. Evidently a scorbutic factor was involved in these.

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[1] Dr. A. Douglas Bigland's paper, entitled "Œdema as a Symptom in So-called Food-deficiency Diseases," appeared in THE LANCET, Jan. 31st, 1920 (p. 243).

General Symptoms.

The patient complained of marked debility, and in the advanced stages of the illness became so weak that he could not attend to his needs. Diarrhœa, frequently turning into dysentery, was almost universally present, and proved most intractable. The temperature was only slightly elevated, except in cases complicated by pulmonary tuberculosis, when, of course, it was much higher than normal. There were some cases which had no pyrexia. Pyorrhœa and spongy, congested gums were also observed, and it may be mentioned that night-blindness, without any apparent ocular changes accompanying it, was by no means uncommon. Dr. H. P. Keatinge, late director of Kasr-el-Aini Medical School, Cairo, found an extraordinary prevalence of night-blindness amongst the native troops engaged in Kitchener's Sudan campaign. He attributed it to scurvy, which was then rampant. There were no characteristic nerve changes. In some patients the knee-jerks were very sluggish, almost absent, whilst the cornea and pharynx were often found to be insensitive. However, the pronounced asthenia was probably sufficient to explain this alteration in nerve response.

Physical Signs.

As a rule the heart showed no signs of organic disease. Occasionally a bruit of hæmic origin was heard. Generally the heart sounds were weak and the pulse was rapid and lacking in volume. This latter fact is important, inasmuch as most continental observers associate bradycardia with their cases of war œdema. Only 2 out of the 54 cases exhibited dilatation which would account for the dropsical condition. Hence, in the vast majority the œdema could not be ascribed to cardiac incompetency, and its causation, therefore, must be sought elsewhere.

No obvious lesions in the lungs were detected excepting in those cases which had pulmonary tuberculosis. As previously stated, pleural effusions were common, and when fluid did not occur the lungs were usually normal.

In cases complicated by malaria the spleen was enlarged and hard; otherwise it was not palpable.

Urine: Albumin was almost invariably present. Sometimes it was represented by a trace; frequently the urine was loaded with it. Much less often albumin was absent and the urine was perfectly normal. There were two cases of general anasarca in which the urine was absolutely normal. A few cases had casts, pus, and a large quantity of albumin. In these latter definite degenerative changes of the kidney had arisen, and probably accounted for the œdema. But the largest proportion showed nothing abnormal excepting some albumin. Consequently the kidney cannot be accused of being instrumental in the production of the œdema.

There was no frequency of micturition. The average daily urine content varied from 45–55 oz. Even under the influence of diuretic treatment no marked diuresis occurred. This failure to promote an increased urinary flow rendered the œdema more persistent, and seriously vitiated the prospects of a hopeful prognosis.

Blood: The blood usually showed an anæmia of the secondary type. There was an absolute diminution in both the red and white blood cells. A characteristic blood count was—

Red blood cells	3,500,000	Polymorphs	36
White blood cells... ...	4,000	Lymphocytes	48
Hæmoglobin	60	Mononuclears	16

In many cases a relative lymphocytosis occurred, whilst the frequently occurring mononuclear increase was evidence of malarial infection. No variation from the normal in the eosinophils was observed. The blood pressure was very commonly lowered, the average systolic pressure being about 100, the average diastolic being about 85.

Post-mortem Changes.

There was a marked absence of subcutaneous fat. All the organs were found to be abnormally reduced in size and weight. The heart, lungs, liver, spleen, and kidneys were similarly affected. The heart usually weighed only 3–5 oz., but in other respects was apparently normal. The liver was almost constantly the seat of fatty degenerative changes. In the malaria-complicated cases, the spleen was enlarged, hard, and pigmented, but in the non-complicated the spleen was very small, sometimes weighing only 3 oz. and of normal consistency. When pulmonary tuberculosis did not accompany the œdema the lungs were normal. The kidneys and suprarenals were shrunken in size, but were otherwise normal. On one occasion a hæmorrhage into a suprarenal was noted. Evidences of dysenteric ulceration—either old or recent—were almost constantly present in the descending colon and rectum. The ulceration was chiefly of the bacillary form.

Owing to absence of facilities the histological changes in the various organs could not be investigated.

Factors in Causation.

As to what factors are operable in the production of the œdema I cannot yet state accurately. An analysis of the concomitant diseases is instructive and may probably help to shed some light on the causation. The incidence of pellagra is remarkably high. Dysentery and malaria, though occurring in much less proportions, are frequently present.

It would seem that this œdema and pellagra are in some extraordinary manner associated, and it is quite rational to suggest that the origin of the œdema is due to the same elements that are responsible for the causation of the pellagra. As the ætiology of pellagra is by no means definitely established this suggestion does not elucidate the matter much further. I may add that I am reserving for another occasion a treatise on the results of my observations of a number of pellagra cases which were under my care for an extensive period. I shall then have an opportunity of discussing its causation, as I am in a position to give a detailed account of the previous diets of the patients.

At this juncture it is sufficient to say that my conceptions of this œdema are that it is due to a combination of two factors—food deficiency and debilitating diseases—e.g., malaria, dysentery, pulmonary tuberculosis, &c.—operating to produce a third factor—adrenal insufficiency—which is the immediate cause of the condition. Whether the food deficiency chronologically precedes the onset of the debilitating disease or vice versa can be only conjectural. I personally think that the debilitating disease or diseases occur first and thus render the system more receptive of the deleterious influences that accrue from the subsequent food deficiency.

Malaria, dysentery, tubercle, &c., were extraordinarily prevalent among the Turkish forces in Palestine, whilst their food-supply during the last 12 months of the campaign was in a precarious condition. That something more than the dietetic element was involved is obvious from the failure of response to treatment, which was almost universal in these œdema cases. In beri-beri, scurvy, and other dietetic diseases the prognosis is distinctly good when the missing food factor is restored. These cases, however, did not respond to improved food conditions, and thus it may be assumed that this peculiar œdema, though closely allied to the food-deficiency diseases, is a distinct entity. That a dietetic agency is engaged is evident from the following observations made in this epidemic: (1) The remarkable similarity of some cases to wet beri-beri. (2) The frequent coexistence of scorbutic symptoms—e.g., spongy congested gums, brawny swelling of the legs accompanied by a subcuticular hæmorrhagic rash, and night-blindness. (3) The close parallel existing between the physical signs and symptoms recorded and the results obtained by McCarrison in his experimentally fed pigeons. He noted in pigeons fed on a diet deprived of certain accessory food factors a high incidence of œdema, great wasting, marked derangement of gastro-intestinal digestion, malnutrition of the nervous system, a secondary anæmia of the red and white cells of the blood, and pronounced atrophy of all the organs, excepting the suprarenals, post mortem. Strange to say, the suprarenal glands of the pigeons were always enlarged, whereas the suprarenals of all our Turkish prisoners were found to be atrophied. As previously observed, a hæmorrhage into the suprarenals was discovered in one prisoner.

McCarrison attributes the œdema in his pigeons to hyperadrenalinæmia, causing increased intracapillary pressure and acting in concert with malnutrition of the tissues.

Malaria also exerts a very important influence in the production of the œdema. Already in a paper which has been accepted for publication in the *War Office Malaria Journal* I have drawn attention to the development of ascites and œdema even in early cases of malaria. These cases I described as examples of so-called malarial nephritis, as they closely simulated true nephritis. The urine, however, although frequently showing albumin, never contained casts. They responded to antimalarial treatment, with the rapid subsidence of the ascites and œdema. No local focus could be found to explain the origin of the œdema, which was ascribed to the direct action of the malaria parasite or its toxins.

The researches of Paisseau and Lemaire[2] at Salonika are of still greater interest, as they proffer an explanation of the œdema in malaria. Some of their malignant malaria cases manifested a condition of hydræmic cachexia, consisting of anæmia, œdema, and profound asthenia. This phenomenon occurred during the course of even a primary infection, and the mortality was very high. In patients who had succumbed to this variety of malaria they found very important lesions, sometimes degenerative, sometimes hæmorrhagic, of the adrenal capsules, which showed a great accumulation of hæmatozoa. They accordingly attributed the condition to adrenal insufficiency.

Hence it is established that malaria plays an important rôle in the causation of œdema.

The part played by dysentery is more obscure. That it is in some way implicated is evidenced by the frequency with which dysenteric ulceration has been noticed in the intestines in these cases. It is obvious that intestines infected by dysentery cannot undertake their normal functions as regards digestion and assimilation. Thus even mechanically dysentery may be regarded as aiding and abetting in the food-deficiency factor. In a previous contribution I described[3] a peculiar septicæmia occurring rather frequently in Turkish prisoners of war. I attributed it to infection from the lower bowel, as practically all the cases had a history of previous dysentery. On reading McCarrison's[1] "Pathogenesis of Food Deficiency," I was struck by the fact that there was a high incidence of septicæmic infections in his experimentally fed pigeons. He thought the septicæmia was due to some toxic influences under conditions of food deficiency. These pigeons also developed œdema. In the case of the septicæmia amongst the Turkish prisoners the dysentery was the toxic influence whilst a dietetic factor was involved too. It is quite probable that if these cases of septicæmia had been more advanced, œdema would eventually have arisen.

Thus, although no definite date can be adduced to prove the exact effect of dysentery in the production of œdema, it is quite feasible to consider it as a very useful adjuvant in its causation.

In conclusion, I wish to take the opportunity of thanking Lieutenant-Colonel P. S. Vickerman, late O.C. No. 2 P. of W. Hospital, Cairo, for his extreme kindness and help in this work.

References.—1. McCarrison; Indian Journal of Medical Research, 1918. 2. Paisseau and Lemaire: Bull. Académie de Médecine, 1916. 3. Author: Contribution to War Office Malaria Journal, March, 1919; Bahr and Enright: THE LANCET, 1918, ii., 585.

ACUTE GLANDERS IN MAN.

BY T. HUNTER, M.A., B.SC., M.D. GLASG.,
LIEUTENANT-COLONEL, I.M.S; CIVIL SURGEON, NAINI TAL.

AS acute glanders in man is an unusual condition and one likely to give trouble in diagnosis, at least in its earlier stages, it has been thought worth while to put this case on record. The symptoms corresponded fairly closely to those described by Goodall in his text-book on fevers. This book, however, was not available for reference till after the termination of the case, and the only descriptions of glanders in man that could be found whilst the patient was alive were records of a much less acute infection, also in an officer of the Indian Civil Veterinary Department, described by himself.[1] That infection lasted two years and four months, and then, after an interval of eight months, lighted up again and lasted for a second period of two years. My case was totally different from this and its history is as follows:—

A veterinary officer aged 34 years, employed in laboratory work, was admitted to the Ramsay Hospital, Naini Tal, on June 22nd, 1919, complaining of fever, headache, pain in both legs and in the left shoulder, of six days' duration, the illness having definitely begun on the afternoon of June 17th with malaise, fever, and headache. The patient was a robust man. He had been inoculated for the enteric group in 1917. On admission the mouth temperature was 102° F. and the pulse 88 per minute, the tongue was heavily coated, and yet the patient did not look very ill. The pain complained of in the left shoulder seemed to be around rather than in the joint, but nothing abnormal could be found. On both calves there was an appearance like a small boil which had missed coming to a head; on the front of the left shin there was a red inflamed area like erythema nodosum, and on the dorsum of the left foot there was a painful area. Nothing abnormal was found in the chest or abdomen; the liver and spleen were not enlarged. A blood film showed distinct increase in the polymorph leucocytes. There was no sign of malaria.

The complaint of headache, the dissociation between temperature and pulse, and the appearance of the tongue, suggested a tentative diagnosis of one of the typhoid group. The increase in the polymorphs was definitely opposed to this, but it was conceived as possible that there was in addition to the typhoid an infection with staphylococcus causing the boils and accounting for the blood picture. Asked on the point the patient was definite that he had not been working with staphylococcus or other pyogenic organism.

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[1] Journal of Comparative Pathology and Therapeutics, vol. xxvi. p. 223, and vol. xxix., p. 26.

Directly on admission blood was drawn from a vein and inoculated into oxbile; a Widal was also done. The report on these was that the blood in oxbile had remained sterile, but that the Widal gave a positive reaction to *B. typhosus* in a dilution of 1/500 and a feebly positive reaction to *B. paratyphoid A* in 1/50, and *B. paratyphoid B* in 1/100, and strongly suggested a typhoid infection. This confirmed the diagnosis arrived at clinically.

For the next week the temperature ran about 104°, generally below, occasionally above, and no new symptom developed. There was still the marked dissociation between the temperature and the pulse, the latter ranging between 80 and 100. But clinically the patient did not resemble a case of typhoid and doubts began to be felt about the diagnosis. A blood film taken on the 29th still showed marked increase of leucocytes. The boils were subsiding and the inflammation over the shin and foot was very much less. The following day the abdomen was slightly tympanitic, reviving the typhoid diagnosis.

On June 30th one or two small pustules appeared on the trunk and scalp, and the back of the right hand became inflamed. The bacteriologist took smears and made cultures from the pustules and reported them sterile. Blood was also taken and injected into broth, and again nothing could be grown.

Problems of Diagnosis.

It was now beginning to be perceived with certainty that the disease was either not typhoid or was typhoid with some other infection superimposed. In view of the profession of the patient, and as he had been employed in the manufacture of mallein, glanders was considered; but the sterile pustules seemed to negative this, and as the pustules were in some places umbilicated for a couple of days, the suspicion of small-pox superimposed on typhoid had considerable attention. On July 2nd and 3rd very many fresh pustules appeared and large confluent pustular areas were formed, worse on the scalp. In spite of the negative bacteriological reports a definite diagnosis of acute glanders was made on July 3rd. On the 4th it was manifest that the old inflamed area of the left shin had broken down, and there was a second area above the left knee which looked suspicious. An incision was made into each and from each a small quantity of thick gelatinous pus was evacuated. Some of this pus was examined bacteriologically and was reported to show practically pure cultures of a bacillus morphologically identical with *B. mallei*.

From this date the condition rapidly went from bad to worse. Fresh pustules continued to appear until it was hardly possible to find a piece of skin free for the area of a finger. Many coalesced and formed large pustular areas. The face was affected with the rest of the body, and the resulting swelling of nose and eyelids made the patient unrecognisable by his friends. From the evening of July 4th the patient was unconscious and breathing stertorously, though nothing was found in his chest at this stage. On the 5th abscesses were opened on the back of both hands and on the dorsum of the left foot showing the same thick gelatinous pus in very small amount. On the 6th examination showed coarse râles at the base of both lungs, doubtless hypostatic. Death occurred at 4 P.M. on this date.

Treatment was symptomatic and as for typhoid till July 1st, when intravenous injections of eusol, 100 c.cm. doses, were begun. These were given daily till the end. At first the pustules were opened, cleaned, and treated with tinct. iodine. They became so very numerous that this was discontinued on July 4th. The organism isolated from the pus was injected into a guinea-pig and produced typical orchitis of glanders as found in those animals, with an exudate into the tunica vaginalis from which bacilli like that of glanders were easily recovered.

The bacteriological investigations were conducted by Major A. Hayes, R.A.M.C., of the Naini Tal enteric depôt laboratory.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

AN OPERATION UNDER DIFFICULTIES.

By NATHANIEL CRICHLOW, M.B., CH.B. GLASG.,
GOVERNMENT MEDICAL OFFICER, BRITISH SOLOMON ISLANDS.

THE natives of the British Solomon Islands have been so accustomed to live amidst dirt, filth, and squalor that they seem to become immune to septic germs. I attribute the recovery of the following case to such immunity.

One morning I received a letter from the Father in charge of the Roman Catholic mission informing me that during the night one native stabbed another native in the abdomen and that the stomach and intestines were protruding through the abdominal wound. Although at the time suffering from an attack of malarial fever, I went immediately to the mission station. I examined the native and found that he had an abdominal wound 3 in. long in the epigastric region and running in an oblique direction. The cartilages of the sixth and seventh ribs were completely cut through. Through this wound protruded the stomach. The stomach itself had a wound $1\frac{1}{2}$ in. long and penetrating the entire anterior wall. Through this opening the contents of the stomach were oozing. The patient was in a collapsed condition and his pulse was very soft. Ten hours had elapsed between the time he was stabbed and the time I saw him. As the patient was not in a condition to stand a trip by water and as the hospital was some distance away I decided to operate on the spot. Unfortunately I had no instruments with me. I asked the Father what instruments, dressings, &c., he could supply and he informed me that he could supply me with the following: One pair of scissors, skin suture needles, catgut, rubber drainage-tube, wool, lint, lysol, chloroform. I decided to operate with these instruments, with the addition of my pocket-knife. The patient was lying in a native hut built of leaves and on a wooden bunk. The hut and the bunk were far from being clean.

Operation.—I washed the protruded stomach well with weak lysol solution and salt solution, then without any anæsthetic I stitched up the wound in the stomach, using the skin needles and catgut. Owing to the sharp cutting edges of the needles, great care had to be exercised in stitching up the stomach. The patient was then placed under chloroform. The abdominal wound had to be enlarged, and this I did with my pocket-knife. I then pushed back the stomach into the abdomen, covered it with omentum, inserted a drainage-tube, and stitched up the abdominal wound. Before I left I instructed the Father as to the care of the patient, the diet he should receive, and as to the dressing of the wound.

The following day I returned and fully expected to hear of the patient's death. Much to my surprise, I was informed that he was alive and apparently much better. I did, indeed, find the patient much better. His pulse was beating fairly strongly, there was very little abdominal pain, and he was able to converse with me. Four days after I again visited the mission station and was informed, to my surprise, that the patient was walking about. I dressed the wound and gave him 1 oz. of castor oil. I left in the drainage-tube for a week and then removed it. A fortnight later the abdominal wound had quite healed and the patient was walking about and eating anything he liked. He informed me he could eat just as well as before and had no epigastric pain.

This patient was operated upon in a dirty leaf house and on a dirty wooden bunk. Proper aseptic precautions could not be taken. A pocket-knife, a

pair of scissors, skin suture needles, and catgut were the only instruments used in the operation. I had to be anæsthetist as well as operator. The patient had very little skilled attention after his operation, except that his wound was dressed daily by the mission Father. Yet in spite of all these disadvantages three weeks after being stabbed he was walking about as well as ever, and was none the worse for his experience.

FOUR UNUSUAL CASES OF INTESTINAL OBSTRUCTION.

BY ALAN C. PERRY, M.R.C.S., L.R.C.P.,
LATE HOUSE SURGEON, LONDON HOSPITAL.

THE four cases described below, admitted to the London Hospital within a period of 48 hours, are recorded as being of general interest.

(1) *Atresia of the Small Intestine.*

M. S., aged 18 hours, admitted on Oct. 18th, 1919. Normal labour. Since birth had vomited continuously green froth and had not passed meconium. On admission well-developed child, vomiting greenish fluid. The abdomen was distended. About 1½ inches from the anus was felt what appeared to be an obstruction to the finger. No bulging downwards could be detected. A rubber catheter was passed and was obstructed at the same spot.

Operation.—A muscle-splitting incision was made in the left iliac fossa; the small gut was distended and ended blindly. This blind end was brought out of the wound and enterostomy performed with a small Paul's tube. The child never rallied and died about six hours later.

Post-mortem report.—Paul's tube in apparently blind extremity of distended upper 95 cm. of small intestine (7 cm. circumference). Proximal 30 cm. of distal segment of small intestine (0·7–1 cm. circumference) free from the main mesentery, greatly twisted upon itself, and bound by several band-like adhesions to the lower surface of the proximal intestine, to the sigmoid colon, and to the transverse colon. The omentum replaced by adherent bands. Notch (10 cm. long), with rounded border in mesentery, between the upper extremity of small gut and the base of the apparently blindly ending proximal 30 cm. of the distal segment. Upper segment distended with gas. Pasty greenish-black occasionally white content in lower segment. Pale greenish pasty substance in colon. No abnormality in rectum and anus. Almost complete collapse of both lower lobes of the lungs. Patches of collapse in posterior parts of both upper lobes. Ductus arteriosus and ductus venosus patent. Foramen ovale patent. Bile-stained mucus in stomach. Uratic casts in kidneys. Centre of ossification in lower end of femur. Great congestion of lips and nails. Well-developed male baby.

(2) *Acute Obstruction by Band Simulating Appendicitis.*

D. C., aged 4, admitted on Oct. 19th, 1919. This child was brought to the hospital, having been ill for 48 hours. She complained of gradual onset of pain in the right iliac fossa, where it had remained localised, incessant vomiting, and constipation. On admission the child looked very ill and her eyes were sunken. Her skin showed loss of elasticity. Tongue was dry and coated. Temperature was 99° F. and pulse was 136. The abdomen was slightly full, and the movement on respiration was markedly impaired in the lower abdomen. There were rigidity and tenderness over all the lower abdomen, but this was more marked in the right iliac fossa. On rectal examination no bulging of the pouch of Douglas could be felt.

Operation.—Under the anæsthetic an indefinite mass was felt in the right iliac fossa. A muscle-splitting incision over the mass was made, and later enlarged upwards. The small intestine was distended, and there was a considerable quantity of blood-stained fluid in the peritoneal cavity. The mesentery was studded with tuberculous glands, and there were numerous adhesions between the intestines. On tracing down the distended gut there was a sharp kink produced by a band attached to the mesentery and to the intestine near the mesenteric border. This band was divided. The intestine about 2 feet above was also joined to this point by adhesions and the portion in between was much discoloured, had lost its lustre, and did not contract. It was not considered viable, and about 2 feet of small intestine, extending to within 6 inches of the ileo-cæcal valve, was resected. End-to-end anastomosis was performed. A drainage-tube was passed to the pouch of Douglas after the abdomen had been irrigated with hot saline. After the operation patient's temperature continued to rise, and reached 105° before she died some 12 hours later. No autopsy was allowed.

(3) *Strangulated Sciatic Hernia with Pregnancy.*

C. P., aged 27, admitted Oct. 20th, 1919. Married, no children, no miscarriages; 18 weeks pregnant. Seven days before admission she had sudden acute pain in umbilical region, and vomited watery material. The attack subsided, and she was perfectly well in a few hours. Three days later she was seized with a similar acute pain in the umbilical region which radiated down the right leg and into the pelvis at times. The pain was colicky, and came on two to three times an hour. It was accompanied by persistent vomiting and much retching. The vomit was brownish in colour, but was not foul-smelling. Since this second attack of pain there had been absolute constipation. On admission: A well-nourished woman with anxious expression. Temperature normal. Pulse 112. Tongue dry and coated. The abdomen moved well with respiration, but was definitely distended, particularly in the hypogastric region. No visible peristalsis was seen. There was no rigidity or tenderness, except a slight degree over the lower part of the right rectus. The uterus could be felt reaching to within two inches of the umbilicus. No dullness was elicited in the flanks. On vaginal examination the os was patulous, but the fornices were very tender and difficult to examine. The pouch of Douglas appeared to be empty. On rectal examination a few hard scybalæ were felt which were washed out by two enemata. These were returned without relieving the obstruction.

Operation.—An incision was made in the mid-line below the umbilicus and the recti separated. The small intestine came into view and was markedly distended. A portion of collapsed gut was also found and the two were traced respectively downwards and upwards. They were found to meet in the right side of the pelvis where the intestine was firmly fixed. On attempting to bring up the obstruction to the wound the gut was inadvertently torn. About three inches of gut was then resected, including the tear, which was seen to have been through the constriction ring of a Richter's hernia. End-to-end anastomosis was performed. On examination of the pelvis there was found to be a hernial opening passing into the right sciatic notch above the pyriformis. The sac admitted the tips of two fingers for about half an inch, and in this the strangulation had taken place. A drainage-tube was passed into the pouch of Douglas and the wound closed in layers. The patient was nursed in the Fowler position. There was some difficulty in getting the bowels to act at first, but afterwards she made an uninterrupted recovery.

She was discharged on Nov. 19th. Her wound was well healed and her pregnancy undisturbed. The uterus reached to within one inch of the umbilicus. On vaginal examination the os was still somewhat patulous and there was still some tenderness in the right fornix, which bulged slightly.

(4) *Acute Obstruction by a Band in an Elderly Man.*

J. W., aged 56, admitted Oct. 20th, 1919. This man was admitted complaining of gradual onset of pain in the umbilical region of the abdomen for four days. The pain was not severe, but was dull and aching in character. Since the onset he had vomited repeatedly, and had returned everything that he had taken. The vomit consisted merely of the food he had attempted to eat or drink, It was not brown in colour. His bowels were opened on the first day, and there was a constipated result to an enema on the second day. Since then the constipation had been absolute. He had never had diarrhœa or been troubled with his bowels in any way. His right hip was ankylosed and he had been treated for tuberculous disease about five years previously. On admission: Temperature 97° F. Pulse 80. Tongue slightly coated. The abdomen was distended and showed a definite ladder pattern with visible peristalsis. There was no ascites. The liver was not enlarged and no lump could be felt in the abdomen. On rectal examination scybalæ could be felt. An easily reducible left inguinal hernia was present. There were numerous scars over the right hip, one of which was discharging yellowish pus.

Operation.—An incision was made over the left rectus below the umbilicus, the muscle was split, and on opening the abdomen a small quantity of straw-coloured fluid was found. The small intestine was distended, but the cæcum was empty. The intestines were matted together by old fibrous adhesions. On tracing the distended intestine down a sharp kink was found, produced by a thick fibrous band attached to the mesentery and to the intestine midway between the mesenteric and the anti-mesenteric borders. This band was divided and the gut above emptied itself gradually past the stricture. The wound was closed in layers.

The patient died about 24 hours later with symptoms of ileus.

Post-mortem report.—Hæmorrhagic partial necrosis, in places almost perforated, of a knuckle of ileum (6·5 cm. long) situated 183 cm. above the cæcum. This portion of gut lies free in the peritoneal cavity. Great distension and a few submucous hæmorrhages in small intestine above strangulation. Very slight fibrinous adhesions between coils of gut throughout abdomen, but no evidence of tuberculosis in these adhesions. Large indirect inguinal hernial sac left, reaching to bottom of scrotum and containing an easily reduced portion of pelvic colon. Collapse of large intestine. Great acid digestion of lungs with congestion. A few fibrous scars producing puckering of pleura apex of left lung. No fibrous pleural adhesions. No tuberculosis of mesenteric glands. Brown atrophy of the heart. Numerous puckered scars, some of them with shallow ulcers covered by scabs, around the right hip-joint. Considerable mobility in the joint.

Remarks on Cases.

The points of interest in these cases are: (*a*) The varying ages of the respective patients; (*b*) the unusual nature of the causes of obstruction; (*c*) the impossibility of diagnosing the actual cause of obstruction before operation; (*d*) the length of the history in the last three cases; (*e*) the fact that in Case 3 apparently a previous strangulation had reduced itself three days before.

I am indebted to Sir Hugh Rigby and Mr. Robert Milne, under whom the cases were admitted, for permission to publish them.

A CASE OF

CORNEO-SCLERAL CYST.

By H. Haward Bywater, M.D. Vict., F.R.C.S. Edin.,
HONORARY SURGEON, ST. PAUL'S EYE HOSPITAL, LIVERPOOL;
AND
P. Eldon Gorst, M.B., Ch.B. Liverp., M.R.C.S., L.R.C.P. Lond.,
HONORARY ASSISTANT SURGEON, ST. PAUL'S EYE HOSPITAL, LIVERPOOL.

THE case is remarkable for the size of the cyst, which, being situated in the upper half of the right eye, extended across almost the whole length of the palpebral aperture, and caused very marked lagophthalmos.

J. C., a boy aged 9 years, fell on the spout of a kettle three years ago. His right eye was cut, and he was taken to a hospital where the eye was stitched next day. He was in hospital for three weeks, and on leaving it could only see shadows, but no swelling was noticed for over two years. When admitted to hospital he complained of no pain, but only of the discomfort and disfigurement that the swelling caused. He could still see shadows.

The cyst was roughly crescent-shaped and occupied the upper third of the cornea and the sclerotic above this and on either side. It measured 25 mm. in the horizontal direction and 12 mm. from before backwards at the point of its greatest depth. The upper lid barely covered the cyst. There was no ulceration present. There was no anterior chamber and no pupil was visible. The tension was +3. No movements were seen in the cyst.

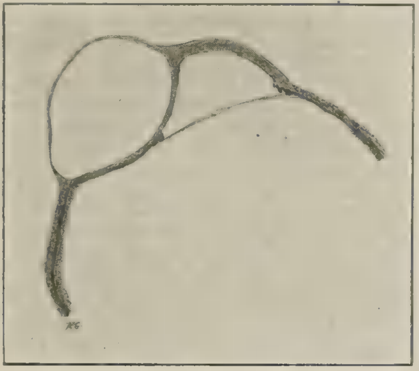

FIG. 1.—Showing general arrangement of cyst.

The eye was removed on August 14th, 1919. On section the cyst was found to contain clear fluid. It had the characteristics of an implantation corneo-scleral cyst. The iris was stretched in the vicinity of the cyst, but in front was firmly adherent to the cornea. The posterior chamber was deepened, especially near the cyst, and pigmented bands of organised lymph could be seen in front of a small and fibrous lens. No communication could be made out between the cyst and the posterior chamber. The optic nerve was cupped. The cyst was lined with squamous epithelium, which in places sent down projections which formed imperfect septa.

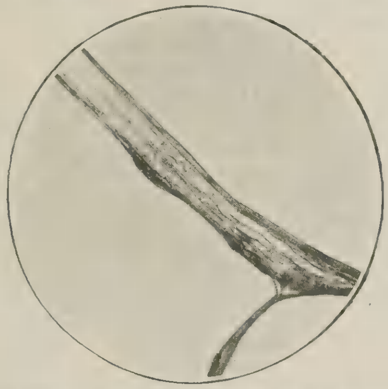

FIG. 2.—The corneal wall of the cyst, showing the corneal epithelium on one side and the epithelium lining the cyst on the other. A projection of the epithelium into the cavity of the cyst is shown.

The sections here illustrated were made by Dr. Gorst at the Thompson Yates laboratories.

WEST CORNWALL INFIRMARY, PENZANCE.—At the annual meeting of the subscribers to this institution, which was recently held, it was decided to make a public appeal for the erection of a children's ward. The cost of the scheme is estimated at £12,000, being £5000 for the building and £7000 for maintenance. It was reported that the late Mrs. D'Esta Oliver had bequeathed £3000 to the funds of the charity.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Typhus and Relapsing Fever in Mesopotamia and Northern Persia.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 27th, Dr. A. F. VOELCKER, the President, being in the chair.

Dr. W. H. WILLCOX read a paper on Typhus and Relapsing Fever in Mesopotamia and Northern Persia. He gave a history of these two diseases and accounts of their outbreak during 1916, 1917, and 1918 in these regions, pointing out that the ætiological factors were all in accordance with the view now generally held that the body-louse is the main channel of infection of both diseases. Those factors which were associated with prevalence of the diseases which are endemic were those favourable to the life and multiplication of the body-louse. In Persia, owing to the lower degrees of maximum temperature, occurrence was all the year round, while in Mesopotamia the great heat of the summer effectively stamped out the diseases. In Lower Mesopotamia the diseases were uncommon amongst the natives owing to temperature conditions being adverse to their spread. In the Baghdad area, however, the diseases occurred practically always in the early part of each year, being, no doubt, brought along the caravan routes from Persia and the upper regions of the Euphrates and Tigris by pilgrims and others. The Turkish troops in Mesopotamia during the whole war suffered terribly.

Another source of the diseases in 1918, continued Dr. Willcox, was the influx of some 50,000 refugees from the lower Caspian region, bringing with them a heavy louse infection, as well as both diseases. In 1916 and 1917, since communication with the local Arabs in the infected areas had not been established, the main source of infection of the few cases that occurred was from Turkish prisoners. Those of our troops who came into contact with them, such as medical personnel, motor transport drivers, military guards, &c., ran serious risks of infection. After the occupation of Baghdad and large areas of Northern Mesopotamia, the troops came more into contact with the local population, so that in 1918 the main source of infection was the local population of Arabs, Kurds, and Persians. Many of these had been enrolled into native labour corps and in them both diseases occurred, so that those of our troops who were brought closely into contact with these men ran grave risks of infection; thus the medical personnel, ambulance and transport drivers, military police, and those in charge of the native labour corps were specially exposed.

As regards other channels of infection than the louse, it was pointed out that since the excreta probably contain the virus of the disease, general care as regards prevention of infection was necessary in the nursing of patients. With typhus no case was observed where the disease had spread from patient to patient in hospital, and no case was known of the spread of this disease where the agency of lice could be excluded. With relapsing fever the risk of infection appeared decidedly greater. Several instances occurred where the disease had spread from a patient to another person when every precaution had been taken to prevent access of lice. Two cases were quoted in which bacteriologists contracted the disease after taking blood from a patient for examination, in each case the usual incubation period intervened and it seemed likely that the blood of an infected person may convey the infection, also possibly the excreta in cases of a relapsing fever may serve as carriers of the disease. An unusual type of relapsing fever occurring in Northern Persia at Mianeh was described; this appeared to be conveyed by a tick known as the Mianeh bug, and the symptoms resembled those of ordinary relapsing fever such as occurred in Mesopotamia, the attacks being perhaps more severe. No opportunity of blood examination in these cases offered itself. The close association of typhus fever and relapsing fever was alluded to, and also the interesting fact that a patient suffering from one of these diseases might carry on him lice which were capable of producing both diseases. The native populations appear to have considerable immunity to typhus fever, and often had the disease in a very mild form.

The occurrence of outbreaks amongst the troops was described and the source of the different outbreaks traced. The interesting feature of the Mesopotamian campaign was that owing to the difficulties of communication, through the long distances between the posts where troops were stationed, the origin of each outbreak of disease could usually be traced, and the spread of infection effectively guarded against. At no period did these diseases get out of control, and outbreaks were quickly localised and stamped out.

Symptoms and treatment of typhus fever.—Attention was drawn to the marked severity of the mental symptoms and to the profound effect on the brain lasting many months after the fever had subsided, thus lack of concentration and inability for mental effort, associated with a condition of slight deafness, commonly lasted for at least six months. An important diagnostic symptom in the acute stage of illness was the loss of the knee-jerk, which usually disappeared about the fifth day and remained lost during the febrile stage and for a varying period after this had subsided. In severe cases a condition of coma with incontinence sometimes lasted for a week or more after the temperature had become normal. The character of the rash and its distinctions from the rash of enteric and paratyphoid and other rashes which occurred in Mesopotamia were fully described. In the treatment of typhus fever attention was called to the great value of administration of normal saline. In severe cases this was given rectally every four hours, commencing about the eighth day, and in the later stages subcutaneous and intravenous saline were given. Where symptoms of venous thrombosis threatened, an intravenous injection of normal saline containing $\frac{1}{2}$ per cent. and 1 per cent. of citrate soda was of value. The value of arsenobenzol in the treatment of relapsing fever was emphasised, and a dosage of 0·3 g. was recommended (or 0·45 g. of novarsenobenzol). Almost invariably the temperature would fall to normal within 18 hours, and usually no relapse occurred. In a series of 241 cases treated by kharsivan only 5 per cent. showed relapses. Doses smaller than 0·3 g. were found to be inefficient, while doses greater were inadvisable, owing to the risk of hyperpyrexia. When a relapse occurred after the dose of kharsivan recommended it was usually of a very mild nature, and generally the apyrexial period was much prolonged.

The debate, continued by Dr. J. C. G. LEDINGHAM, Dr. J. A. ARKWRIGHT, Dr. WILLIAM HUNTER, and Dr. A. G. PHEAR, and others, will be reported in our next week's issue.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

The Therapeutic Uses of Oxygen.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 20th, Dr. H. H. DALE, the President, being in the chair.

Mr. J. BARCROFT opened a discussion on the Therapeutic Uses of Oxygen, which was used by him in the treatment of men who had been gassed either in battle or during the making of munitions. He described the method of oxygen administration as carried out in the Cambridge laboratory by him and his co-workers, which, he said, was of the simplest character, as, owing to the treatment being experimental, they desired that the patient should be subjected to only one altered condition of life—namely, the composition of the atmosphere which he breathed. For this reason they avoided all types of apparatus for the administration of oxygen through a mask or otherwise, considering that a second variable was introduced by hampering the patient with apparatus. A glass room of about 1000 cubic feet in capacity formed a tiny ward. In this were three beds. The ward was gas-tight and fitted with air-locks large enough to serve the entrance and exit of the patients. Small air-locks were provided for the admission of food, &c. The composition of the atmosphere was kept at about 40 to 50 per cent. of oxygen and 50 to 60 per cent. of nitrogen. The carbonic acid and aqueous vapour were removed by the passage of the gas through an external circuit, which contained scrubbers of soda lime and calcium chloride. The patients were put in the chamber from about 5 P.M. till 10 A.M. for five consecutive days. The cases were all of a chronic character. In a chronic case of poisoning with chlorine, phosgene, or chlorpicrin the patient usually complained of nocturnal attacks of dyspnœa, with which might be associated sleeplessness, or physical distress out of proportion to the exertion which caused it, or both. Of these two the exaggerated response of the system to exercise offered a better mark for objective expression than did the nocturnal dyspnœa. The problem of how an exaggerated response to exertion might be stated in terms of units was one which had concerned many workers within the past few years. The response either of the circulatory or the respiratory system might be taken as the guide. Each had its advantages and its drawbacks. The pulse was easy to count, its variations in rate were susceptible of simple and accurate statement, but its significance in relation to the strain put upon the heart or the volume of blood propelled round the body was obscure, whilst the mechanism of its regulation was, at the time the experiments were carried out, also obscure. The respiratory system was in some respects more hopeful, for not only could the frequency of the respiratory system be measured but the total ventilation, the composition of the air expired and of that retained in the lung, and the depth of respiration, could all be recorded. On the other hand, the respiration was, to a much greater extent than the pulse, under the influence of the will, and therefore the records when obtained were to that extent of more doubtful value.

In the first 14 cases studied the response of the pulse to effort was taken as the criterion, in the last 12 the respiratory response.

Pulse as an Index of Effort Syndrome.

The procedure, as far as the pulse was concerned, was as follows. After a general examination of the patient had taken place he was made to rest for 15 minutes; his pulse was then counted. He was then given an exercise to perform, the severity of which was judged appropriate to his condition. His pulse-rate was counted again when the exercise was completed, and the time observed from the end of the exercise till the pulse had dropped to within six beats of its resting-rate. In nearly every case the pulse of the gassed man took an unduly long time to return to its normal. After the treatment the man was given the same test as before it.

Tables were then shown of the 14 cases, giving the recovery times of the pulse after specified exercises. All received benefit. With regard to the permanency of the effect on pulse, several of the patients were examined two and a half months after treatment, when it was shown that there was great improvement as compared with the original condition; three of them were normal (as compared with a healthy man doing the same exercise), two were nearly so, and one was improved, though his condition was not quite so satisfactory as immediately after treatment.

The Red Blood Corpuscle Count.

A sign which was frequent but by no means invariably present in cases gassed with phosgene or chlorine was a high red blood corpuscle count. It was largely the occurrence of this sign which suggested the oxygen treatment to Mr. Barcroft and his co-workers. Occurring, as it does, in persons exposed to atmospheres deficient in oxygen, they argued that the normal atmosphere to these patients presented an oxygen deficiency, and that therefore an increase in the oxygen inspired might reduce the red blood count to a normal value. The results of treatment were satisfactory, for not only were the high blood counts reduced to normal during the treatment, but the blood counts which were normal before the treatment remained normal throughout. Two and a half months after the treatment counts were made in several cases, and in none was it very high, the highest being 6·2 millions. None of these, however, had very high blood counts to start with.

Nocturnal Dyspnœa.

The third sign to which a good deal of attention was paid was nocturnal dyspnœa. The treatment was satisfactory to the extent that out of six cases in which these attacks were a marked feature only one showed no improvement. In one case they were much improved, thought not completely abolished, whilst in the other four cases the attacks were completely and permanently abolished. No man had an attack during treatment. Much more stress could be laid on the abolition of the dyspnœic attacks but for the fact that they were signs of a much more subjective type than persistent quickening of the pulse on exercise or high red blood count.

With regard to the question as to whether these results could be attributed to some subjective cause, the following points should be considered: (1) As regards the red blood corpuscle count, it was extremely unlikely that the numbers should drop from, say, 7·5 millions to 5 millions as the result of suggestion. Moreover, in gassed rabbits precisely the same phenomena occurred. (2) As regards the pulse, 12 cases of D.A.H. not attributable to gas poisoning were given oxygen treatment. These, taken as a whole, showed no clear benefit from the treatment. There seemed no reason why these pulses should not be as susceptible to suggestion as the gassed cases. (3) As regards the nocturnal attacks, in the case of one man a pantomime was enacted of blowing in oxygen in such a way as to make him suppose that he was getting the treatment, whilst the oxygen was expelled from the chamber unknown to him as rapidly as it entered. He complained that the treatment did him no good and that his nights were not improved; on the fourth night the treatment really commenced and the man at once improved.

DISCUSSION.

Dr. G. H. **HUNT** described the method by which they measured the decrease in breathlessness, and the improvement in this respect, after treatment, of the gassed men. It was realised that the main difference in the breathing of healthy and breathless men lay in the time taken for each to recover from the exercise and return to the condition shown at rest. An estimation of the time taken after exercise for the respiration to return to its pre-exercise conditions was found, for many reasons, to be impracticable. Instead of this they compared the total ventilation after exercise with that at rest, and estimated the relation between the total ventilation during the second, third, fourth, and fifth minutes after exercise with that during four minutes when the subject was at rest. By dividing the former by the latter they obtained a figure which they called the "dyspnœa ratio." This they found fulfilled their requirements satisfactorily, for it was reasonably constant for the same individual doing the same amount of work in a given time; it was approximately the same for eight healthy men who were in good "training," and for four who were in bad "training," and clearly distinguished healthy men from those suffering from any disease known to cause dyspnœa. It was also possible to measure in foot-pounds the efficiency of a man—that is, the amount of work he could do with the degree of dyspnœa which was experienced by a trained man doing 10,000 foot-pounds in 1½ min. Having obtained a standard by which a man's efficiency could be gauged in terms of work, it was possible to measure the degree of improvement produced in "gassed" patients by oxygen treatment. In summarising the results of oxygen treatment Dr. Hunt said that of 12 patients, eight improved considerably, three improved slightly, and one did not improve.

Dr. J. S. **HALDANE** pointed out that even a very small degree of anoxæmia (deficiency of free oxygen in the blood) would, if given time, have a serious effect on the individual. This was exemplified in mountain sickness, in which the symptoms were due to the effect of anoxæmia on the nervous system. The same was true of carbon-monoxide poisoning. Anoxæmia was a common condition among ordinary patients, and it was worth while taking early measures to prevent it; for if serious anoxæmia was allowed to go on for a considerable length of time the patient got into a hopeless condition. This was seen particularly in carbon-monoxide poisoning. With regard to the existence of anoxæmia in acute cases, there was important American evidence in papers in the *Journal of Experimental Medicine* for September, 1919, by Stadie and Harrup. They took examples of arterial blood from the radial artery and determined the deficiency in saturation of the arterial blood. Stadie's cases were principally pneumonias of different types. In practically all there was a deficiency in saturation of arterial blood. In some it was as great as 50 per cent., and with such a deficiency the patient always died. There was a deficiency in croupous pneumonia even when the patient was going on well. There were two causes for the arterial blood in the lung not being properly saturated. The first was that the epithelium had become thickened and clogged by exudation, so that the rate at which the oxygen got into the blood was very much diminished, and there was not time for the blood to get saturated with it as it passed through the lungs. This was what occurred in acute lung-irritant gassing. The second cause was unequal expansion of the lung or an unequal rate of entry of air into the alveoli, so that some alveoli would contain too little oxygen to saturate the blood, whilst in others there would be more than sufficient. This was revealed by the experiments of Professor Meakins, Dr. Priestley, and himself at the Taplow Canadian Hospitals in chronic gas cases. This latter condition could be brought about in the normal person by shallow breathing, which was one of the defects in the so-called chronic cases of gassing. In the case of himself, when in consequence of shallow breathing his respiration rate was increased to 30 or 40, Cheyne-Stokes breathing developed in two or three minutes, and this was abolished by adding a little oxygen to the inspired air. In his and Dr. Priestley's experiments the alveolar air during shallow breathing was normal, and yet there was arterial anoxæmia. In bronchitis and such conditions the distribution of air among the alveoli was interfered with by resistance, so that anoxæmia might occur although the lung epithelium was healthy. In chronic gas cases the patients were short of breath, although the lungs appeared to be all right, as judged by examination with a stethoscope. If a gassed man went on working or walking his breathing became rapid and ineffective, and there would be perhaps only 1·5 per cent. of carbon dioxide in the expired air. The shallow breathing was dyspnœa and not simply hyperpnœa. These chronic gas cases had respiratory neurasthenia, causing shallow rapid breathing on exertion, instead of slower deep breathing. In these and similar cases there were also attacks of very rapid shallow breathing, with urgent asphyxial symptoms. The acute attacks often occurred at night. The experiments carried out at Cambridge and Stoke-on-Trent were of great interest as showing how such patients could be helped by putting them into an atmosphere of air enriched with oxygen. The bad attacks did not occur; sleep was sound, and they thus had a proper chance of rest and recovery.

Colonel S. L. **CUMMINS** thought that although it was certain that oxygen could do much good in the acute case of gas poisoning and in influenzal bronchopneumonia and shock, in both of which there was an element of anoxæmia, yet there was a feeling of reluctance on the part of the medical officers to use oxygen. This, he thought, was due to the difficulty in administering oxygen, either through a face mask or by means of an apparatus, to a man suffering from intense anoxæmia, with much nervous irritation and great difficulty in getting breath at all.

Acute Gas Cases in France.

Dr. C. G. **DOUGLAS** spoke of his experiences in France, where the gassed cases were seen in the acute stage. He said that it was obvious after the first gas attack that oxygen administration did some good to patients with cyanosis resulting from acute pulmonary œdema. After an interval of some months a batch of patients arrived, many of whom were in the gravest condition. They were either deeply cyanosed, of a purple colour, obviously short of oxygen, or they had that grey colour of lips and tongue which is associated with a profound deficiency of oxygen and collapse. At first efforts were made to give oxygen by means of a simple tube and funnel. The next stage in the development of oxygen administration was the nasal tube method, which was improvised by Adrian Stokes after a very serious gas attack. About the same time Haldane produced his apparatus. There was no doubt that an enormous amount of good could be done by administering oxygen by some such suitable method. Dr. Douglas then described two cases of severe acute gas poisoning which were improved and eventually cured by the administration of oxygen alone. Sometimes gas casualties were admitted in a very grave condition of collapse and pallor, and the medical officer found that by treating them with oxygen for a couple of hours or so considerable improvement set in, and venesection could then be carried out with advantage.

Dr. J. A. **RYLE** spoke of his experiences after a gas attack in 1916, when oxygen was administered by Captain Adrian Stokes by means of the nasal catheter. Dr. Ryle had applied the method then and frequently afterwards with very great success. To the tube leading from the oxygen cylinder was attached a No. 8 rubber catheter. This was lubricated with vaseline and passed directly along the floor of the nose to a distance of four inches into the naso-pharynx; the catheter was looped up to the side of the face and fixed there by strapping and the oxygen allowed to run in gently. By that means it was possible to give oxygen for as long as 72 hours. He had frequently seen men admitted in a state of grey pallor and cyanosis (such as one associates with extensive œdema of the lungs produced by phosgene) with an almost imperceptible pulse and, on several occasions, a respiration-rate of over 60, in a semi-conscious condition, cold, and collapsed. After 72 hours of oxygen inhalation the respirations became reduced to 24, the men made a steady recovery, and were fit to travel down the line by train without accident. One of the chief obstacles to the use of the Haldane mask was the fluid and froth which the men got rid of by the mouth in bad cases of lung œdema. As much as a pint of serous froth might be poured out in a few hours. It was very important that the mouth be kept clean and free from froth, and care must be taken that the mask does not become clogged by the froth. It was necessary also to give the patient fluid nourishment, and occasionally even some solid food, and this was possible when they were having oxygen through the catheter. The cases were classified into three groups. The mildest were the cases which needed merely the oxygen they could get by being out-of-doors; the medium cases seemed to be sufficiently benefited by a small dose of pure oxygen from a nitrous oxide bag given at intervals of five minutes in every quarter of an hour, sometimes at longer intervals; finally, there were the severe cases, for which continuous inhalation of oxygen was obviously the only form of treatment. It was found to be impracticable to pass a nasal catheter down each nostril on account of deflections in the nasal septum blocking up one nostril. Subsequently he used the catheter method, not only for gas cases, but also for the lung œdema of trench nephritis, a condition which gave a closely similar clinical picture to that produced by phosgene.

Dr. R. A. **PETERS** described a severe case of Bronchopneumonia, with Cheyne-Stokes breathing, which he had treated by oxygen administered by means of the Haldane apparatus, with marked success.

Work of the Medical Research Committee on Oxygen Research.

Dr. FRANK **SHUFFLEBOTHAM** described the work which had been done on oxygen research under the auspices of Sir Walter Fletcher and the Medical Research Committee at the North Staffordshire

Infirmary, Stoke-on-Trent. The wards were opened in October, 1918, and up to the present time over 100 cases had been admitted. The cases included for the most part those of chronic gas poisoning, but in addition there had been cases of acute gas poisoning, pneumonia, carbon-monoxide poisoning, and two cases of pernicious anæmia. The patients suffering from chronic gas poisoning derived great benefit from this treatment in the general state of their health, and in many instances symptoms of long standing such as cough, shortness of breath, expectoration, asthma, and irregular action of the heart became less severe in nature and frequently disappeared. The physical condition of the lungs and heart also underwent a considerable improvement. Dr. Shufflebotham quoted from the report to the Medical Research Committee an account of the technical details connected with the construction and working arrangements of the chamber. The estimation of the amount of oxygen and carbon dioxide is carried out by the Haldane apparatus. With regard to the cost of oxygen treatment, Dr. Shufflebotham said that at Stoke-on-Trent, where the strictest economy had been exercised in regard to the supply of oxygen to the wards consistent with the percentage of oxygen in the atmosphere being in excess of 40 per cent., and in spite of all efforts to control expense in every direction, it had not been possible to bring down the daily cost per patient to less than £1 3*s.* 6*d.*, not including any sum which could be attributed to capital charges. With pneumonia cases the cost was such that it was very likely to handicap research in this direction, unless money was forthcoming from further grants or philanthropic sources. The high cost of oxygen was due to the fact that the production of oxygen in this country is in the hands of a monopoly. It had been suggested that instead of pure oxygen from the cylinders it might be possible to use the by-product of the air after the nitrogen had been extracted from it. Another suggestion was that liquid air, which contained about 60 per cent. of oxygen, could be used for these cases. He was convinced that there was a great usefulness for oxygen treatment as well as a great field for research, and, considering the amount of human suffering which might be alleviated by such treatment, it seemed almost a scandal that the work should be handicapped because of an oxygen monopoly.

Account of 70 Gas Cases.

Dr. G. H. SOWRY gave an account of 70 cases of gassing. In all cases the gassing had occurred at a more or less distant date, varying from four months to over two years. In most cases the nature of the gas could not be ascertained, though in the earlier cases it was probably chlorine, later phosgene, and later still "mustard gas." The patients were admitted for periods of five or six days, and remained in the chambers for about 20 hours each day, being allowed out for exercise for about four hours each afternoon. The chambers were surcharged with oxygen, the percentage being between 35 and 40 in the earlier cases and from 50 to 60 in the later. After their discharge they were asked to report for examination two, four, and six weeks later. Before treatment the patients were examined and notes made as to: 1. Subjective symptoms such as cough, expectoration, sleeplessness, dyspnœa and palpitation on exertion, asthmatic attacks, &c. 2. Objective signs as revealed by a clinical examination of heart and lungs. 3. The chest was X rayed. 4. An examination of the blood was made, the red cell count and hæmoglobin percentage being noted. 5. The response to effort was tested by three tests—(*a*) short violent effort, by swinging of arms; (*b*) medium effort, by going up and down stairs; (*c*) prolonged effort, by walking round the hospital grounds.

Symptoms on admission.—Most patients complained of (1) cough and expectoration; (2) dyspnœa, palpitation, and præcordial pain on exertion; (3) attacks of nocturnal dyspnœa in all essentials like true spasmodic asthma; (4) sleeplessness; (5) low appetite and dyspepsia; (6) mental depression.

Physical signs on admission.—Lungs: Emphysema was present in about 40 per cent. of the cases. Nearly all of them exhibited râles, rhonchi, or crepitations over the whole or part of the lungs. In many cases over the lowest three or four inches of the bases behind there were slightly impaired resonance and fine crepitations. X ray examination in nearly all cases showed a condition of fibrosis, especially near the roots of the lungs. The appearance of the plates suggested a condition of peri-bronchial phthisis, but in only two cases had he proved the existence of active tuberculosis. If the condition was one of true fibrosis there could be little hope of a permanent cure. Heart: Only a few cases of V.D.H. were found, and in about ten cases there was hypertrophy. The most obvious condition found was a very poor response to effort. At rest the heart sounds were in most cases clear and the action regular, though in a little less than half, there was some irregularity with extra-systole. Even slight exertion in nearly all cases caused a great increase in pulse-rate, with marked irregularity. Nervous system: Very few showed any physical signs of organic disease beyond increased tendon reflexes and some vaso-motor instability.

Results of treatment.—1. Immediate. In the large majority of cases the patients were decidedly better for the treatment. They felt brighter, more cheerful, and more energetic. Their appetites improved, and their digestions were better. Sleeplessness in most cases lessened, and where patients suffered from asthmatic attacks this symptom disappeared. Coughs improved, and expectoration was reduced. The response to effort—as measured by the tests—generally appreciated, in most cases considerably. It was difficult to estimate numerically the results, but a careful classification justified him in saying that of the 69 cases reported upon 23 were very much improved, 30 were much improved, 10 were improved, and 6 were not improved. 2. Later. The later results, as estimated on the last examination (usually six weeks after the end of treatment) were, on the whole, very satisfactory, though there was certainly a tendency for some of the original improvement to be lost. Numerically expressed, of the 60 patients who reported 15 were very much improved, 22 were much improved, 10 were improved, and 13 were not improved. Dr. Sowry then considered the effect of treatment on each of the common symptoms. Besides these cases of gas poisoning other diseases were treated. Two cases of pernicious anæmia were treated with unfavourable results. Five cases were treated, where the predominant symptom was respiratory difficulty, and in all the results were so good as to be almost startling. It was in these cases that he thought the value of treatment in oxygen chambers offered the highest hopes. The five cases comprised two cases of severe acute gas poisoning, one case of coal-gas poisoning, one case of broncho-pneumonia with emphysema in a child aged 3 years, and one case of acute lobar pneumonia, with complete consolidation of the whole of both lower lobes. All these five cases suffered from want of oxygen in a severe form. They all improved almost immediately they entered the chambers. Dr. Sowry was convinced that treatment by the continuous inhalation of a *warm* atmosphere, surcharged with a known percentage of oxygen, held great promise in the treatment of many diseases.

Dr. P. HAMILL spoke of the effects of oxygen administration in cardio-vascular disease and opium poisoning. Oxygen in high concentration abolished the heart-block and maintained the blood pressure at a uniform high level during the apnœic period of Cheyne-Stokes respiration. With the improvement in circulation there was in some cases a return of consciousness. Satisfactory results could only be obtained with a concentration of 40–50 per cent. for hours at a time. The nasal tube was satisfactory but wasteful. Most methods of administration by a mask necessitated the constant attendance of a nurse and were almost equally wasteful. There was a great need for a simple portable apparatus on the lines of that used for insufflation anæsthesia, in which oxygen could be circulated and the CO_2 absorbed. On the grounds of portability and cost sodium peroxide had much to recommend it as a source of oxygen in preference to cylinders.

SECTION OF ODONTOLOGY.

DENTAL SEPSIS IN CHILDREN: ITS CONSEQUENCES AND TREATMENT.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 26th, Sir JAMES COLYER, the President, being in the chair, when Mr. F. ST. J. STEADMAN read a paper on Dental Sepsis in Children: Its Consequences and Treatment. The paper is published in the front part of the present issue of THE LANCET.

DISCUSSION.

In the course of the discussion which followed,

Mr. F. N. DOUBLEDAY said that the function of the teeth was very important, but he agreed that where sepsis was established and the teeth functionless, they were useless and redundant and should be removed.

Mr. F. B. BULL spoke of the importance of the nervous system of the child, which in many cases was such that it was impossible to carry out treatment. Teeth which were septic should be removed at once. He agreed that extensive extraction could be done under ethyl chloride on the open mask.

Dr. ARTHUR SAUNDERS laid emphasis on the excellent results which he had seen in children at the West London Hospital after treatment of the teeth. The children with septic teeth, in addition to being anæmic and wasted were often slightly cyanosed and night sweats were present, so that tuberculosis was often suspected; the heart, too, was often slightly dilated, a condition which he considered to be due to a mild septic myocarditis which cleared up after removal of the septic teeth. Slight albuminuria was often present, and nephritis sometimes supervened. Some acute cases of hæmorrhagic nephritis due to dental sepsis reminded him of similar cases occurring after scarlet fever.

Mr. E. B. DOWSETT said that the way in which children were able to eat after all the teeth had been removed was remarkable. Those whom he had been able to follow up were able to eat even meat, and thrived well. The occurrence later of irregularity was the only bugbear, but possibly this need not be considered seriously owing to the enormous advantage which followed thorough treatment.

Mr. A. T. PITTS said that Mr. Steadman had brought a serious indictment against the medical and dental professions in stating that some members of both professions did not recognise the serious effects of dental sepsis in children. His experience at the Hospital for Sick Children enabled him to endorse all that Mr. Steadman had said with regard to the gravity of the problem and the results of adequate treatment. The effects of dental sepsis, both local and general, were apparent, and equally striking was the improvement in the general health when the mouth was rendered clean. Even where the mouth had to be left practically edentulous the children put on weight and were able to eat their food in comfort. It was astonishing that any man with a medical training should fail to see the harm arising from septic teeth. Frequently mouths were seen in which necrosed roots had ulcerated through the side of the gum, a condition comparable to sequestra being exfoliated. No doctor would regard such a condition occurring elsewhere with complacency, and yet it was sometimes allowed to exist unnoticed in the mouth. It was true that premature loss of the deciduous teeth often led to irregularity of the permanent teeth, but this lesser evil was so completely outweighed by the greater evil of dental sepsis as to be not worth considering. Some had said that this irregularity was a common predisposing cause of pyorrhœa in later life. In his opinion dental sepsis in an adult whose metabolism had reached a state of equilibrium was less serious than sepsis in a growing child who needed nourishment, not merely to replace the daily loss of energy, but to increase the bulk of its tissues.

Mr. LEWIN PAYNE laid stress on the need for prophyctic treatment. Adequate instruction should be given o parents and children, or the condition would recur u two or three years.

Mr. J. G. TURNER said that extraction was necessary in order to get rid of sepsis. The need of the poor children of London for dental treatment was urgent. All the dentists in the British Isles would not suffice to do all the stopping which should be done. Myopia might result from dental sepsis, the sclera becoming affected by toxæmia or by the malnutrition which accompanied the condition.

Mr. GEORGE THOMSON, speaking of tuberculosis in school children, said that dental sepsis affected the child in two ways: (1) allowed the infection by pathogenic germs and (2) by resulting malnutrition. The school dental treatment scheme broke down because there were an insufficient number of dentists available. Treatment must be begun earlier. He had removed incisors in children of 15 months. The incisors of babies became denuded of enamel owing to the sugar-bag which was given them by their mother when going to sleep.

Mr. G. NORTHCROFT and the PRESIDENT also spoke, and Mr. STEADMAN replied.

MEDICAL SOCIETY OF LONDON.

EXHIBITION OF SPECIMENS.

A PATHOLOGICAL meeting of this society was held on Jan. 26th, Mr. V. WARREN LOW, the President, being in the chair.

Congenital Dilatation of the Ureter.

Dr. C. E. LAKIN showed two specimens illustrating Congenital Dilatation of the Ureter. The first consisted of the bladder, ureters, and kidneys, and was removed from a male child 17 days old, who had had a slight degree of hypospadis and phimosis. The ureters showed a high degree of dilatation, the lower part of the right ureter being as large as an adult cæcum. No difficulty was experienced in passing a probe through the orifices of the ureters where they opened into the bladder. The position of these orifices was unusual; not only did the right ureter enter the bladder at a higher level than the left, but both entered the bladder much nearer the fundus than usual. The bladder was not distended. The urachus was only partially obliterated. There was relatively only slight dilatation of the pelvis of the kidney, so that the specimen appeared to be described more correctly as one of congenital dilatation of the ureters than of congenital hydronephrosis. The second specimen was the right ureter and kidney, removed from a boy, aged 10, by Sir Alfred Pearce Gould. No obstruction existed at the lower end of the ureter. The boy had had a swelling in the right side of the abdomen most of his life, but latterly the swelling had increased in size. The patient made an excellent recovery. The ureter was enormously dilated, exceeding an adult colon in size.

Mr. E. PEARCE GOULD thought that the dilatation might be explained by increased intra-ureteric pressure brought about by the abnormal course of the ureters in the bladder wall.

Dr. FREDERICK LANGMEAD compared the condition to megalocolon, and to œsophageal dilatation, in each of which structural obstruction was often absent. Sometimes a group of such dilatations was met with in the same infant, and he thought their explanation lay in irregular muscular action of the involuntary muscle. He had removed after death a specimen closely similar to the first example shown by Dr. Lakin.

Dr. B. H. SPILSBURY agreed in ascribing the dilatation to abnormal neuro-muscular action. The dilatation in the first case was too great to have occurred after birth from mechanical causes, acting during so short a period as 17 days.

Status Lymphaticus.

Dr. LAKIN also showed two portions of intestine from a case of Status Lymphaticus. The patient was a girl, aged 7, who died while under anæsthesia about 15 minutes after the anæsthetic was begun. The specimens showed the usual enlargement of Peyer's patches and solitary follicles. There was enlargement, also, of the thymus and mesenteric glands, and the wall of the right ventricle of the heart was unusually thin.

Multiple Neurofibromata.

Dr. J. G. **GREENFIELD** showed some specimens from a case of Multiple Neurofibromata. During life the diagnosis of cerebral tumour at the cerebello-pontine angle had been made, and subtentorial decompression was performed by Mr. Donald Armour. Before the operation cutaneous neurofibromata were detected and led to the suggestion that the intracranial tumour was of the same nature. After death tumours were found on both acoustic nerves and on spinal nerves near the spinal cord. Another was connected with a semilunar ganglion. In the latter the nuclei of the tumour cells showed a "palisade" arrangement. In Dr. Greenfield's opinion neurofibromata originated from the sheath of Schwann, which explained why they are not found in association with the optic and olfactory nerves.

Congenital Heart Disease.

Dr. **SPILSBURY** showed the heart of a woman, aged 35 years, who had died from Congenital Heart Disease. There was sufficient patency of the ductus arteriosus to admit a finger. Spontaneous rupture of the pulmonary artery into the pericardium had occurred, and had been brought about by atheroma, which was visible at the margins of the tear. Old rheumatic disease of the tricuspid and pulmonary valves were associated.

Dr. **SPILSBURY** also showed a series of specimens illustrating sudden death from Pulmonary Embolism. In the subsequent discussion it was held that thrombosis of peripheral veins, and consequently embolism of pulmonary artery, occurred independently of sepsis.

Dr. **SPILSBURY** also showed a Coral Calculus from the Urinary Bladder.

Protein Reactions.

Dr. J. **FREEMAN** demonstrated the conjunctival and cutaneous reactions obtainable in patients who are susceptible to various proteins. In the case of hay fever it was shown that a diluted extract of grass pollen, if instilled into the conjunctival sac, produced a harmless and transient injection, while if a tip of a glass rod was charged with the pollen and rubbed into a square scratch in the skin an irregularly shaped wheal resulted. Quantitative testing could be carried out with known dilutions of the extract. Susceptibility to other pollens, to the protein of horses and other animals, and to various kinds of food, fell into the same group, and the symptoms varied only in accordance with the anatomical position to which the disturbing protein was applied. Thus, the severe vomiting and diarrhœa which prostrated some persons who ate eggs or strawberries was of the same nature as the prostration and catarrhal changes in the upper respiratory passages in hay fever. The tests were specific and denoted which was the particular protein to which a patient was susceptible. Experiments had shown that when a susceptibility to a protein was encountered in an individual other members of the same family often showed a susceptibility to other proteins. With regard to the pollens, that of grass was the only one of importance, though certain persons were susceptible to others. This was explained by its abundance and its lightness, the others being relatively much heavier. Another method of employing the test was to precipitate the protein to be tested out of a watery solution by an excess of alcohol. The solution was then filtered and the filter-paper with its attached precipitate dried. A small square of this paper, protein-side downwards, if superimposed on a scratched surface, gave the cutaneous reaction. Only sufficient protein to give the faintest opalescence to the solution was enough to give the reaction.

Dr. A. **FLEMING** demonstrated the methods of testing donors' blood in the technique of blood transfusion.

Mr. **DONALD ARMOUR** showed specimens of (1) Right Frontal Abscess following a gunshot wound of the right orbit in which suppurative meningitis had been limited to the *left* vertex and base; (2) Scirrhus Carcinoma of the male breast; (3) Renal Abscess. The case was one of a group which had been under his care during the time when perinephritic suppuration was prevalent. His cases supported the contention of those who held that the suppuration around the kidney was secondary to infection of the kidney itself.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. C. **SCHMITT** read a paper on

Radium and X Rays.

Of eight cases of cancer of the uterus treated by him with radium since last March four had made so much improvement that they regarded themselves as cured; one patient was in a very satisfactory condition, one had been lost sight of, the seventh was progressing favourably though the treatment had been very irregular, and the eighth case had survived more than five years. He agreed with Béclère in regarding radiotherapy as applicable to all uterine fibroids, apart from certain cases in which urgent operation was required.

In a communication on

Biological Medication,

Dr. A. **DARIER** discussed the action of normal and antitoxic serum, vaccines, and all biological agents such as exudates, filtrates, tissue extracts, organic fluids, bacterial cultures, and colloids. He dealt particularly with hypodermic injections of cow's milk, which were first employed by Muller and Thanner of Vienna in 1916 and had yielded good results in the treatment of gonorrhœal arthritis, eye diseases, especially iritis, articular rheumatism and influenza. The action of parenteral injections of milk, peptone, and nucleins was partly to be explained by the febrile reaction caused by introduction into the blood-stream of a foreign albumin and partly by the stimulation of leucocytosis and phagocytosis. In severe infections Dr. Darier had derived much benefit from the combination of injections of diphtheria antitoxin or polyvalent serum with injections of milk. As the latter could only be given every other day owing to the febrile reaction which they caused, he gave on alternate days an injection of serum which had a sedative and analgesic action in addition to its power in combating infection. He had found that the alternate use of injections of milk and serum greatly reduced the frequency of serum complications.

In a paper entitled

The Legend of Arsenic in Dermatology,

Dr. **CARLE** (Lyons) said that when a drug enjoyed such a persistent and general vogue as arsenic, the vogue could generally be explained by the following: (1) The influence of authority; (2) the knowledge of precise experimental facts proving its action; (3) clinical observation of numerous well-established cures. The revival of arsenic in therapeutics dated from the beginning of the nineteenth century with Fowler, Pearson, Monro, and Willan in Great Britain. Biett, who introduced Willan's doctrine into France, became an ardent supporter of the drug, and his enthusiasm was shared by Cazenave, Rayer, and Devergie. The reaction commenced in the second half of the century with Hillairet, who declared that arsenic was not a specific for any form of eczema, or, indeed, for any skin affection. Almost at the same time Vidal denied arsenic any therapeutic value, and Baumès, the dermatologist of Lyons, stated that though he had seen some improvement and a few cures, he had witnessed a large number of gastric and intestinal complications. In German-speaking countries arsenic was as much ignored as any other internal medication in dermatology, both the school of Unna and that of Hebra regarding it as unnecessary and dangerous. Besnier, Brocq, and Audry also protested against the abuse of arsenic in the treatment of skin disease. It was therefore clear that the leaders of French dermatology were not responsible for the vogue which arsenic enjoyed in France. Dr. Carle next showed that experiments had not proved the favourable action of the ingestion of arsenic either on the skin or on the general condition. In his practice he had found that treatment of skin affections with arsenic, often in large doses and for a long period, yielded no appreciable result. Comparison with the results obtained by the local use of coal-tar preparations had been so much in favour of the latter that since 1905 he had never given a single dose of arsenic in cases of eczema, psoriasis, para-keratosis, lichen, or other skin conditions. He concluded that the reputation of arsenic was in great extent due to its having been used in cases such as erythema, herpes, pityriasis rosea, and other cyclical dermatoses which had a tendency to spontaneous recovery, and also to the demands of the patient, who was convinced of the value of an internal remedy.

In a paper on

The Dangers of Autoserotherapy,

Dr. Victor Cordier (Lyons) related the case of a soldier, aged 26, admitted to a tuberculosis ward with slight lesions of the right apex, and a painless swelling, the size of a large hazel nut, in the abdominal wall. The patient had been treated by autoserotherapy for tuberculous peritonitis five years previously. On incision the swelling proved to be a cold abscess containing tubercle bacilli. Dr. Cordier concluded that autoserotherapy was not merely a useless, but also a dangerous, method. Similar accidents had been recorded after pleural autoserotherapy.

Dr. H. Bourges reported a case of

Intoxication by Syrup of Belladonna

in a child aged 14. He alluded to a similar case, published by Merklen, in a child of the same age, after taking the syrup prepared according to the French Codex of 1884. Although the Codex of 1908 had reduced the quantity of active principles contained in the syrup by a third, its administration was not yet free from danger, even when given in small doses at a time and well diluted. The present patient was a girl, the subject of pulmonary tuberculosis, suffering from frequent spasmodic cough and night sweats. 15 g. of syrup of belladonna in 120 c.cm. of water were ordered to be taken every 24 hours in small doses. After the first few doses the child became very restless, complained of headache and dryness of the throat, and kept calling for something to drink. On his visit next morning Dr. Bourges found her neck, face, and trunk covered with a pruriginous scarlatiniform eruption. The pupils were dilated and sluggish in reaction. The urine was scanty and red. The temperature was 103·2°, the pulse 130, and the respirations rapid and laboured. The medicine, which had been given throughout the night, was stopped, and 48 hours later the rash disappeared. On the third day all the symptoms had subsided.

North of England Obstetrical and Gynæcological Society.—A meeting of this society was held at Manchester on Jan. 16th, Mr. Miles H. Phillips (Sheffield), the President, being in the chair.—Mr. W. Blair Bell (Liverpool) showed a specimen of Diverticulum of the Bladder with Cystitis. The diverticulum was adherent to the right ovary and was undoubtedly congenital.—Mr. Carlton Oldfield (Leeds) had often observed cases of diverticula of the bladder, but in no case had infection occurred. He suggested that a portion of the bladder wall might have been pulled out by inflammatory tissue in the neighborhood of the right uterine appendage; but Mr. Bell, in reply, did not think this probable.—The President demonstrated a specimen of Adenomyoma of the Recto-vaginal Septum in a multipara aged 45. A tender nodular cystic growth occupied the posterior fornix and presented a small area of papillary growth. No connexion with the cervical mucosa could be demonstrated. He had operated on more than 20 of these cases and considered them to be of inflammatory origin.—Dr. H. Leith Murray (Liverpool) recalled a case of adenomyoma presenting unusual features, and contributed to the society by the late Dr. Wallace in 1914.—Dr. D. Dougal (Manchester) described two cases on which he had performed Cæsarean section for Dystocia, due to (*a*) uterus bicornis unicollis and (*b*) ventrofixation, or adherent myomectomy scar. In the first case the non-pregnant horn of the double uterus lay within the pelvic brim and caused obstruction. The second patient had a myomectomy performed four years previously. The anterior uterine wall was firmly adherent to the parietes, the exact cause of which could not be definitely ascertained. The posterior uterine wall had become enormously hypertrophied and had pulled the cervix upwards and backwards to the level of the sacral promontory. Owing to the fixation the Cæsarean incision had to be made through the posterior uterine wall, and a few days after operation a coil of small intestine lying in the pouch of Douglas became adherent to it and caused acute intestinal obstruction. This was remedied at a second operation, and the patient then made a good recovery.—Dr. W. W. King (Sheffield) showed microscopic sections of a Spindle-celled Sarcoma which appeared at the lower end of a colporrhaphy wound within one month of operation, and was apparently cured by Coley's fluid.—The President thought the appearance of the section very suggestive of granulation tissue.—Dr. A. Donald (Manchester) said that the clinical picture in this case did not seem to be altogether in favour of sarcoma, and that diagnosis by microscopic examination was sometimes very difficult.—Dr. King, in reply, thought that the rate of growth was too rapid for granulation tissue. He would keep the case under observation and make a further report in six months' time.—Mr. Oldfield described a case of Hydatid Mole with bilateral ovarian cysts and toxæmia. The patient was a multipara aged 36. Her husband had contracted syphilis a year previously, and she herself had a positive Wassermann. Severe toxæmia with albuminuria developed suddenly. On examination the uterus was found retroflexed and the size of a 3½ months pregnancy. Seven days later the uterus reached the costal margin. Abdominal pain and tenderness, and marked tachycardia were present, and her general condition was grave. There was no external hæmorrhage, and the cervix was closed. Under an anæsthetic the uterus was emptied, and the contents found to be a hydatid mole. There was practically no hæmorrhage during the operation. During the pelvic examination at the time of operation bilateral ovarian cysts were discovered, the left being apparently the size of two fists. The patient recovered rapidly, and the ovarian cysts decreased, until three months later they had entirely disappeared.—Dr. W. E. Fothergill (Manchester) mentioned a case of hydatid mole, in which severe symptoms of toxæmia had necessitated his removing the uterus. However, toxæmic symptoms persisted and caused death two months later.—The President related a case where a large cervical fibroid caused severe hæmorrhage ten years after the climacteric. The patient, a spinster aged 57, had a quite sudden profuse hæmorrhage, which was only controlled by packing the vagina. A pelvic tumour had been known to exist for years, but had caused no recent discomfort. Hysterectomy was performed; the uterus was atrophied, but the cervix was lengthened to over 6 in., and extremely thinned by a large cervical fibroid. Under the cervical mucous membrane covering the lower pole of the tumour were many large veins, and it was considered that rupture of one of these had led to the profuse bleeding.

Nottingham Medico-Chirurgical Society.—At a meeting of this society held on Jan. 21st, Dr. W. Rowe being in the chair, Dr. C. H. Cattle read a paper on Cardiac Affections and the War. He said that the condition we speak of as "soldier's heart," though well known in medical literature, had now for the first time in the history of our country become familiar to every practitioner. The principal symptoms were said to be palpitation, breathlessness, cardiac pain, and giddiness. The chief causes were some infective illness, especially rheumatic fever, and the physical and mental strain of warfare. Half the cases of this affection, for which the term "effort syndrome" is an apt description, were taken from light occupations. As so many men were unable to bear strenuous exertion in civil life, the conditions of military service might be said to have rather brought out a latent tendency than to have caused this condition. Methods of identifying the commoner forms of irregularity of the heart were described. Drugs, with the exception of bromides, were comparatively useless in the "effort syndrome." The most successful method of treatment was the system of gradual physical training in a special institution, introduced by Dr. Thomas Lewis. Some of these men had systolic murmurs, but the murmur per se was found to be no bar to the attainment of a high standard of physical endurance. The general adoption of the exercise test was considered to be the greatest advance made in the examination of cardiac cases as a result of the experience of the war. The following conditions call for rejection for the army: enlargement of the heart, mitral stenosis, aortic regurgitation, aneurysm, repeated attacks of rheumatic fever, failure to pass a strenuous exercise test. A systolic murmur, in the absence of enlargement of the heart or of symptoms, is far more often functional than organic. Aortic stenosis without regurgitation is rare. The murmurs of mitral regurgitation cannot be distinguished from other systolic murmurs at the apex. But this affection, even if its existence could be proved, may be compatible with many years of useful and even strenuous life. On the contrary, the tendency of mitral stenosis and aortic regurgitation is to get steadily worse.

THE present year is the centenary of the opening of the Cornwall County Asylum, which took place on Oct. 25th, 1820, when the first patient was admitted. It is hoped that the event will be subsequently commemorated in some appropriate manner.

Reviews and Notices of Books.

THE TRANSMUTATION OF BACTERIA.

By S. GURNEY-DIXON, M.A., M.D. Cantab., M.R.C.S. Eng., L.R.C.P. Lond. London: Cambridge University Press. 1919. Pp. xviii. + 180. 10*s*. net.

TO-DAY a prominent problem of the bacteriologist is what constitutes a bacteriological species, nor can this problem be solved until he has determined what are the limits of the variability of bacteria. It is a problem that has been with us from the very beginning of bacteriology as a science. Ray Lankester was one of the first to draw attention to the subject in his studies of the *Bacterium roseo-persicinum* in the "seventies." Hueppe and Cartwright Wood, Roger and Charrin in the "eighties," Adami and others in the "nineties"—all called attention to the position, but the routine bacteriologist was satisfied to find that the majority of pathogenic bacteria, when isolated and grown upon the accepted media of the laboratory, gave the regulation reactions. For him forms which departed from type could not be accepted as proper members of the species and merited no further inquiry. With Koch and the German school in general he was a firm believer in the fixity of bacterial species. To-day, with the elaboration of bacterial technique and the consecutive examination of not an odd dozen but of a hundred or more strains, subjecting each not to two or three but to a score or so precisely adjusted reactions, he is forced to see that there is an extraordinary amount of variability, in morphology, in cultural characteristics, and in biochemical properties. Even with forms which in their morphology and cultural characters appear to be identical there may be in the matter of the fermentation of saccharoids—sugar, glucosides, and the lower alcohols—as many distinct strains as there are permutations of a series of a score of numbers.

Dr. Gurney-Dixon has performed a timely service in bringing together a large mass of data bearing upon this matter of bacterial variation and the allied question of mutation or transmutation—i.e., of the sudden development, in the course of cultivation of any one species of bacteria, of forms which diverge strikingly from type, and maintain the divergence in subsequent culture. The work, admittedly, is not complete: it is based upon British bacteriological literature; it does not pretend to present the parallel observations contained in French and German literature; nor is any account taken of the abundant and valuable observations made in the United States. Even in respect to British literature this book only includes material collected before the war; and important and more recent observations by British observers published outside Great Britain, such as those of Thiele and Embleton, are passed over in silence. It is, therefore, very far from a complete presentation of this subject. Yet admitting this, it has also to be admitted that a study of this other literature would not materially have altered the conclusions reached by the author, and those conclusions are conservative. Particularly in his own investigations, Dr. Gurney-Dixon shows himself to possess a wise scientific caution.

But what must impress the reader, both in reviewing the earlier literature and in connexion with the author's own researches, is that the methods employed thus far are, with rare exceptions, inadequate to afford a sure solution of the problem. Particularly is this the case in the study of chance variations, or "sports." If we cannot, on the one hand, reproduce the conditions under which these develop, on the other we cannot convince ourselves that these originate from individuals belonging to type strains. Unless we start by securing growth from a single microbe we cannot be sure that we have not been dealing with a mixed culture. Now such growth from a single organism was not undertaken in the observations here recorded. Even to-day, by the employment of Barber's method or a modification of the same, it is a matter bristling with difficulties, and until those difficulties are overcome we cannot be sure of the results; we deal in probabilities, not in certainties. With impressed variations the case is different; by subjecting all the members of what is presumably a pure culture to the same alteration of environment we can induce, and that constantly, the same alterations, whether in morphology or in individual properties. But even here difficulties occur; it is not so easy as it would seem to subject all parts of a fluid or solid suspension of bacteria to identical conditions. And when we succeed we are met with the likelihood that the variation induced will only be transient. The very lability of constitution which with alteration of environment favours variation is apt to favour reversion to type when there is return to the original environment. Thus we have still to discover the laws—if they exist—governing the permanent alteration in the constitution of the bacterial protoplasm and production of permanent species instead of transient variants.

This book might well induce some young well-equipped bacteriologists to take as their central work the study of bacterial variability and of what constitutes a bacterial species.

THE OPERATIONS OF OBSTETRICS.

Embracing the Surgical Procedures and Management of the more Serious Complications. By FREDERICK ELMER LEAVITT, M.D., formerly Assistant Professor of Obstetrics and Gynæcology, University of Minnesota, &c. London: Henry Kimpton. 1919. With 248 illustrations. Pp. 466. 30*s*.

IN this work the author presents the subject of obstetrics from the operator's point of view, only enough pathology and physiology being introduced to give reason for and insight into the various procedures described. The indications given for pubiotomy are good and sound, and we notice that the author, even when such indications are present, thinks Cæsarean section generally the better operation. Hardly enough space is devoted to internal and external podalic version, and nothing is said of the great advantage of performing the major part of this operation by the abdomen. The section on version is, however, on the whole good, and the illustrations excellent. The chapter dealing with the midwifery forceps is also full and good, although we think the author might have laid more stress upon the many advantages of the axis-traction forceps. It is a pity that the term cranioclasis is used for the simple operation of delivering the perforated head by the cranio-tractor or craniotomy forceps, since this term in most books is definitely applied to the procedure of removing the vault of the skull. We cannot agree that craniotomy need not require more skill than a forceps delivery; a difficult craniotomy calls for a considerable amount of skill, and may be a very formidable and difficult operation. It is curious how many American authors seem to be unacquainted with Ramsbotham's decapitating hook, a much better and easier instrument to use than Braun's hook. In discussing the results of the operation of Cæsarean section no mention is made of the very valuable series of statistics collected by Amand Routh.

Dr. Leavitt apparently is not in favour of the now general treatment of rupture of the uterus by abdominal section, although this would seem to be the now recognised method; and when suitable means are taken to combat the shock, and with the more general use of spinal anæsthesia, this procedure would seem to hold out a prospect of giving good results in the future. The section on accidental hæmorrhage is disappointing, and we are surprised to find the author advocating accouchement forcé in view of the disastrous results obtained in this way. No mention is made of the good results obtained by plugging the vagina, as practised at the Rotunda Hospital; nor does the author appear to be acquainted with the excellent results following the Dublin method of treating eclampsia; nor that the method of non-intervention advocated by Stroganoff gives the best results of all—namely, a mortality of only some 6·6 per cent., as against the mortality of 13·5 per cent. among cases treated by rapid emptying of the uterus.

The book is an interesting one, and should prove useful to those for whom it is written.

REST AND SUGGESTION,

And other Therapeutic Measures in Nervous and Mental Diseases. Second edition. By FRANCIS X. DERCUM, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia, &c. London: Kegan Paul, Trench, Trübner, and Co. 1919. Pp. 395. 21*s*.

WE suppose most members of the profession in actual practice are conscious of a feeling of dissatisfaction in their methods of handling patients with functional nervous disease in any of its multiple forms. Conscious as he is of ever working against time, the busy man, if he is honest with himself, nevertheless hates to dismiss the functional case with a pat on the back and a prescription for a tonic. He has heard of the newer ways of treating such cases by year-long analysis or daily suggestion, but is only too well aware of his comparative ignorance of these therapeutic means, and he fears to step in. At the same time he is unwilling to send the neurotic patient away and the result is an unsatisfactory compromise benefiting neither. A little orientation in the practical principles of rational psychotherapeutics would materially aid him in his daily round. For that he might with advantage turn to Professor Dercum's volume, which lays emphasis on (1) purely medical treatment; (2) simple physiological methods, such as rest and feeding; and (3) the separation of the wheat from the chaff in the chaotic state of present-day psychotherapy. The hysteric, the neurasthenic, the psychasthenic, are dealt with individually along lines which any intelligent practitioner can readily follow, and on principles easily applicable to particular cases. A full consideration has also been given by Professor Dercum to "mind cure," "faith cure," Christian science, and mystic and religious methods generally, each procedure being subjected to a critical analysis.

We appreciate the therapeutic wisdom so amply revealed in the book and cordially commend it to the profession.

PSYCHOLOGY AND THE DAY'S WORK.

A Study in the Application of Psychology to Daily Life. By EDGAR JAMES SWIFT, Professor of Psychology and Education in Washington University, St. Louis. London: George Allen and Unwin, Ltd. 1919. Pp. 388. 10*s*. 6*d*.

WHY WE DO IT!

Psychological Gossip. By R. MCMILLAN. London: T. Werner Laurie, Ltd. 1919. Pp. 218. 6*s*.

THE art of popularising psychology has advanced much farther in America than in this country. Professor Swift is a scientist, and his style is that of a university lecturer; Mr. McMillan has also lived in the atmosphere of an American university, and has derived much of his wisdom from Hugo Munsterberg, though a life of travel and journalism has made a deeper impress on his writing. But both these authors have in their separate ways set out to accomplish the same task—to reveal to the uneducated in psychology what this science has to teach men about themselves. Professor Swift speaks of us as adapting ourselves by the method of "trial-and-error," and has some severe things to say about the small part which reason has played in the development of the science of medicine up to the beginning of the scientific period. "Systems of medicine—if the philosophical and religious view of diseases and their cures may be so dignified—followed one another as philosophy and religion changed. Medicine, like other beliefs, rested on authority. Systems were respectable or disreputable. Massaria of Padua, in the sixteenth century, would rather be wrong with Galen than right with any other physician. One system was used until another was thought to be better, though at that time the trial-and-error judgment was guided more by the underlying philosophical belief than by the results of the treatment." And although the scientific method of investigation and experiment is now with us the old trial-and-error method still continues "the chief method of modern man."

Mr. McMillan states the same case by concluding that we are automatous. His arguments are not convincing, except when they are taken from the mouths of his teachers, for his own mind is not always clear. He has grasped the fact that the word psychology "has a lot of meanings" (p. 135), but not with sufficient force to save himself from using it in two different senses on p. 19, when he attempts to define the word for his readers' benefit. But what his work lacks in definition it supplies in entertainment. Why do people throw an old slipper after a newly married couple? Why do people "touch wood" when they fear evil? Such are the problems which interest him, and in attempting the elucidation of such problems as these we learn that "when Rhadamanthus was King of Crete he passed a law that nobody should swear except by the dog, the goose, or the plane tree." How many of us knew this? Or that "amongst the laws that Hammurabi found in Babylon was one that if a man got drunk and did any damage the keeper of the wine-shop where he got intoxicated was held responsible"? This is not serious psychology perhaps, but it is not intended to be so.

LEHRBUCH DER AUGENHEILKUNDE.

Third edition. By Dr. PAUL RÖMER, Professor of Ophthalmology at the University of Greifswald. Berlin and Vienna: Urban and Schwarzenberg. 1919. With 297 illustrations and 32 coloured plates. Pp. 496. 30 marks.

THE author dedicates this edition of his text-book to the memory of his pupils who have fallen in the war, and states that he has abridged it as far as possible owing to the necessities created by the war. As compared with English text-books of similar size, it is fuller in some parts, as in the section dealing with phlyctenular disease, which is rightly treated as only one part of a general condition depending on defective nutrition; less full in others, as in the chapter on glaucoma, in which we miss any account of the early changes in the visual fields which are so important in diagnosis, while the operative treatment of the disease is dealt with in a manner quite inadequate to its importance.

The book is copiously illustrated in a way which will appeal to the student, while in some instances the illustrations are of value to the ophthalmologist. We may give as examples the coloured plates of blue punctate cataract, of the microscopic section of the choroid in sympathetic cyclitis, and of the ophthalmoscopic picture of colloid excrescences of the lamina vitrea. This last picture, by the way, appears twice, as do certain others of the figures in the coloured plates. Adaptation of illustration to text is not as exact as it should be; in the pictorial representations of the operation for cataract the corneal incision is shown far too large, as is also the iridectomy, although the description in the text is correct.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

For Indian Medical Students and Clinical Assistants. By C. C. CALEB, M.B., M.S. Durh., Professor of Physiology, King Edward Medical College, Lahore. London and Calcutta: Butterworth and Co. 1919. Pp. 252. Rs.6 net.

THE author states in his preface that his book is founded on his lecture notes, and that considerable use has been made of several other books on the subject. Consequently the book presents no essentially new features, and we can easily trace the parent books. The routine of most physiological laboratories is followed, but the author gives rather more than the usual space to the explanation of the various reactions and their physiological and medical significance. This is the best feature of the book, for the explanations are very clear, and must be of value to the student. Reference is rightly made to Indian foodstuffs. As the title indicates, the book is intended for Indian medical students, but it should prove useful to others. We are glad to see a copy of this book, for it shows how carefully Dr. Caleb has taught his students at the King Edward Medical College, Lahore, and we very much hope that a similar course is given in other Indian medical schools.

JOURNALS.

Science Progress. January, 1920. London: John Murray. 6*s.* quarterly.—The work of the late Dr. Charlton Bastian on the question of the possibility of the formation of living organisms from non-living matter is referred to in the January number of *Science Progress*, where there appears a short article by his son, Surgeon-Commander W. Bastian, R.N. In this he draws attention to the fact that in answer to his letter to THE LANCET in May last several letters appeared, but that few were from those who had done any experimental work along the lines laid down by Dr. Bastian, and he urges that a series of experiments should be undertaken on the exact lines described in Dr. Bastian's book, "The Origin of Life." The matter is well worth considering, for many of the objections to the reception of these ideas were based on theoretical reasons.

Maternity and Child Welfare.—The January number of this journal contains a cartoon the motto of which apparently embodies its policy for 1920—"Let's start fair." It contains the usual "20 minutes' talk to mothers," which this month explains lucidly and concisely the somewhat complex duties of the Minister of Health. An interesting account of the satisfactory results obtained by home subsidies, rest homes, and hostels in Liverpool is given by Dr. Ruby McBirnie. Miss Maud Higham writes pleasantly on "The Art of Story-telling," while Miss Jessie Allan deals fully with the subject of the mother in industry from the standpoint of a welfare worker, estimating both the value of the mother to the employer and the value of the employment to the mother. The Conference on Child Welfare in South Africa recently held in Durban is commented on editorially, and the opening address by Dr. Charles Porter, M.O.H. of Johannesburg, and a paper on "The Duties of a Health Visitor in South Africa" are quoted at greater length. The journal's French correspondent describes the municipal creche at Tours, the new maternity centre at Creusot (Saône et Loire), and discusses the secret lying-in hospital recently established at Lyons in connexion with the whole problem of secret confinements. Other features in an interesting issue are articles on women's institutes, the economics of child welfare, and the colony of Serb babies in Corsica.

American Journal of Ophthalmology. May to November, 1919.—Of several articles we select the following for comment.—May: Heydt Fundus Pathology with the Red Free Light of Vogt. A new method of ophthalmoscopy has been devised by means of a lamp with filter apparatus, giving a red free light. The greater part of the fundus looks blue with the vessels showing black, but the macular region is yellow. The nerve striations of the retina are rendered visible and changes in them can be detected in cases of retinitis and optic atrophy which are invisible by the ordinary method of examination. In albinos the yellow appearance of the macula is not seen, showing that this has a direct or indirect relation to the lack of pigment in general. It is claimed that the red free light affords the only objective method by which some cases of retro-bulbar neuritis can be diagnosed. The new method will probably have an important future, but it is one that requires to be learnt, even by the expert in ordinary ophthalmoscopy.——June: The article by H. H. Briggs on Hereditary Congenital Ptosis, with report of 64 cases conforming to the Mendelian rule of dominance, has already been noticed in these columns.[1]—A. B. Middleton contributes some interesting drawings (plain and coloured) of congenital conditions of the fundus found during the routine examination of 200,000 troops.—W. McLean writes on his new form of tonometer, which has excited considerable interest in this country, and J. N. Evans shows a test type suitable for young children.——The July number has several interesting articles. C. A. Clapp: Detachment of Retina in Eclampsia and Toxæmia of Pregnancy. Six cases were seen during a period of 18 months in a lying-in hospital at Baltimore. Full reports are given with illustrations, which show the detachments to have been in all cases very definite. Clapp is of opinion that if ophthalmoscopic examinations were generally made in these cases detachment would be discovered far more frequently than heretofore recorded. The prognosis is exceptionally good. In all his six cases reattachment took place with normal fields of vision.—F. A. Conlon: Conjunctivitis due to Food Anaphylaxis. "It has long been known that certain foods when eaten by individuals peculiarly sensitive or anaphylactic to these foods develop certain symptoms or ill-effects. Among the better known disturbances are urticaria, eczema, vaso-motor rhinitis, angio-neurotic œdema, and bronchial asthma." Conlon gives good evidence to show that conjunctivitis must be added to the list. In his cases strawberries, tomatoes, eggs, and flounders have been the culprits. To diagnose the offending foods he used the protein skin test devised by J. C. Walker, in his investigation of the cause of bronchial asthma, for details of which the original paper should be consulted.—R. P. Luna: Ocular Lesions consecutive to the Injections of Anti-typhoid Vaccine. There appears to be good evidence that anti-typhoid vaccination may be the occasion of certain eye troubles to which the patients have a predisposition or from which they have already suffered. The most typical of these appears to be herpes febriles corneæ, and there may be a similar relation to cases of irido-cyclitis. He concludes that it is not prudent to vaccinate luetic, tuberculous, and rheumatic subjects who have previously had lesions of the uveal tract.—Lloyd Mills: The Effects of Faulty Cranio-spinal Form and Alignment upon the Eyes. Severe ocular imbalance is found more commonly among cases which are primarily orthopædic than among average eye cases. In this article a connexion is traced between right- (or left) handedness and cranial asymmetry, spinal curvature, hyperphoria, and corneal astigmatism. The logical applications to preventive medicine are (*a*) that ambidexterity must be insisted on during the infantile period and the plastic developmental years, and (*b*) the importance of the early recognition of spinal defects and of their cure in youth by the orthopædic surgeon.——August: Dr. Duane's article on the Eyes of the Signalman has already been noticed.[2]—Allen Greenwood: The Organisation and Activities of the Ophthalmic Service in the American Expeditionary Forces. Detailed suggestions for the improvement of the service are made.——September: An Operation Relegating Enucleation of the Eye to its Proper Position. The operation described is a modified Mules's operation, the chief modification being that a window is cut in the back of the sclera, through which the optic nerve is divided. A channel for drainage being thus obtained, it is found that the gold ball inserted into the scleral pocket is not subsequently extruded.—Harvey J. Howard: A Test for the Judgment of Distance. This article has importance in relation to aviation. Of the several factors which contribute to the correct judgment of distance, some are independent of binocular vision, others are not. In comparing the relative ability of different individuals in this respect the factor of binocular parallax was found to be the most important. To test this an apparatus modified from one devised by Brooksbank James in 1908[3] is described.——October: Edward Jackson and W. C. Finnoff: Tuberculosis of the Retina. Interesting drawings of a case occurring in an adult are given.—John Green, jun.: Treatment of Dacryocystitis by Curettage Supplemented by Immediate Rapid Dilatation of the Lacrimonasal Duct. The periodical appearance of new methods of treatment for this trying condition indicate that no finality has yet been reached.—L. Webster Fox: A New Operation for the Relief of Conical Cornea. This consists in excising a portion of cornea and suturing the flaps. A special forceps is figured for holding each corneal flap while inserting the sutures.——November: A. B. Middleton: Macular Hole in the Retina.—E. E. Maxey: Hole at the Macula. These two papers are illustrated by several figures showing examples of this condition found in the one case during the routine examination of recruits for the U.S. army, in the other at a base hospital.—S. G. Higgins: Visual Disability from Eye Injury and Compensation. Certain questions were put by the Industrial Commission of Milwaukee to the Oto-Ophthalmic Society of that State, the answers to which will be of interest to those in this country concerned with the same problems. Compensation, they say, should vary with character of employment, and they publish a table suggesting that on the average useful vision is diminished by 3 per cent. for every 10 feet disability to read the Snellen chart, so that, for instance, vision of 20/40 would imply 94 per cent. ability, while 20/350 would imply 1 per cent.

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[1] THE LANCET, 1919, ii., 258.

[2] THE LANCET, 1919, ii., 619.

[3] THE LANCET, 1908, i., 1763.

La Semana Medica, of Buenos Aires, for Dec. 4th, 1919, contains an article by Dr. Angel Bianchi Lischetti, professor of zoology and comparative anatomy and physiology at Buenos Aires, which may prove to have an important bearing on the question of malaria prevention. The article bears the title, "Un Verme del Genero Planaria, Enemigo Natural de las Larvas del Mosquito" (a worm of the genus Planaria, a natural enemy of mosquito larvæ), and describes a series of observations of extraordinary interest. Being desirous of accumulating a reserve of "plancton" to serve as food for mosquito larvæ whose biology he was studying, Professor Lischetti placed in a large glass vessel a quantity of water containing vegetable growth of various kinds and small animals, taken from the tanks in which aquatic plants were growing in the Botanic Garden of the Faculty of Agronomy and Veterinary Science at Buenos Aires. On examining this water he noticed that, though offering excellent conditions for the development of mosquito larvæ, it contained exceedingly few larvæ or nymphæ, many of the samples containing none at all. This was at first attributed to the presence of frogs and toads in the tanks. At the end of December, 1918, 30 larvæ of *Ædes Calopus*, four days old, were placed in the glass receiver with a view of obtaining adult larvæ. Two days afterwards on looking for the larvæ, which it was expected to find fully grown, no trace could be found of them. On Jan. 10th, 1919, a large number of eggs of *Ædes Calopus* were found on the sides of the receiver close to the water surface and among filamentous algæ. Daily watch was kept on the receiver in order to determine the date of appearance of the larvæ. None having appeared by the 18th, some of the eggs were examined microscopically and found to have undergone normal hatching. The complete disappearance of the larvæ in this case suggested the possible presence of some natural enemy to them, and it was decided to investigate the matter from that point of view. On Jan. 25th, at 4 P.M., 30 culex larvæ were placed in the receivers. The next day only three of these were found alive, and these had disappeared at 8 A.M. on the 27th, leaving behind only a few heads, some stigmatic tubes, and fragments of the chitinous covering—that is to say, the hardest parts of the animals' structure. A thorough examination was then made of the fauna and flora of the water in the receiver and, among other species, the constant presence was noted of a species of worm of the genus planaria. The fact that the larvæ, if small, disappeared entirely and, if larger, left behind only the hardest and most resistant parts of their anatomy, led to the inference that they had been devoured by the planaria, this being the only animal present large enough and active enough to be capable of the feat. On Feb. 28th six of the worms and ten culex larvæ were placed in a vessel full of drinking water. At 8 A.M. next day only three larvæ remained alive; the heads of four others were found, and by 7 P.M. the three that had survived the night were no more. In view of this result experiments were made with a view to determining the method and the rate of destruction wrought by the planaria. On March 5th six planaria individuals having been placed in a vessel containing 100 c.cm. of drinking water, batches of larvæ varying in numbers were introduced in succession into the vessel.

The following table shows what happened:—

4	P.M.			introduced	5	larvæ.	
4.10	,,	remained	2	,,	10	,,	
4.25	,,	,,	4	,,	22	,,	
4.50	,,	,,	3	,,	11	,,	
5.10	,,	,,	5	,,	16	,,	
6	,,	,,	7	,,	22	,,	
6.30	,,	,,	5	,,	9	,,	
6.45	,,	,,	3	,,	13	,,	(2 large).
8	,,	,,	2 (large)				
					108		

Six planaria individuals, therefore, disposed in four hours of 106 larvæ, the sole survivors being 2 large ones. Large larvæ were found throughout the experiments to withstand with comparative ease the attacks of the planaria. As it appeared probable that the destructive powers of the planaria would be diminished after an abundant ingestion of larvæ, the six were placed at 8.30 in a vessel containing 200 culex larvæ. Immediately on their introduction, however, the planaria commenced a hunt, the details of which were watched until 10 P.M. It was observed that after devouring several larvæ a planaria would remain at rest for some ten minutes and then renew the chase. Next morning most of the larvæ had disappeared, no normal larvæ could be seen, those that remained either adhering together in clumps or lying motionless at the bottom of the receiver. The following description is given of the method of attack adopted by the planariæ. They live under water, creeping about the sides of the receiver or close to the surface of the water. They reach the bottom of the receiver either by creeping down the sides or by letting themselves sink through the water by gravity. To reach the surface they always creep up the sides or up submerged objects. The presence of culex larvæ seems to cause a kind of excitement, for directly they are placed in a receiver containing planariæ, the latter begin to quarter the surface of the water in all directions, attaching themselves in an inverted position to the under surface of the pellicle formed by the surface tension of the liquid. The attack is delivered at the moment in which the larva, in order to breathe, applies its stigmatic tube to the surface of the water and remains for an instant immobile. If at this moment a planaria passes the spot it applies to the stigmatic tube one of the lateral lobules of its head, and the larva remains adhering thereto, owing to a viscid secretion which covers the body of the planaria, only well-developed larvæ being able, owing to their greater strength, to escape, which they do by a violent wriggling movement. In many cases, even when the larva has succeeded in tearing itself free, it is seen immediately to arch itself in an endeavour to remove with its mouth the matter adhering to its tube, when it frequently happens that mouth and tube remain glued together, and the larva, unable to move, falls to the bottom and dies asphyxiated. As soon as a planaria has succeeded in attaching itself to a larva it proceeds to twine itself round the latter's body by a helicoidal movement, the victim endeavouring by violent movements to free itself, but not succeeding. The planaria and larva, now leaving the surface, fall to the bottom of the receiver and the former places itself over the body of the latter, and immediately evaginates from its median ventral segment its retractile pharynx, inserts it between two segments of the larva and passes it interiorly along the whole length of the latter's body as a finger is passed into a glove. It is then withdrawn, bringing with it the whole internal economy of the larva and leaving nothing behind but its empty chitinous envelope. Often, and especially when the number of larvæ is small in relation to the number of planariæ, if one of the latter has made a capture, others hurry up and endeavour to carry off the victim. Adult larvæ and nymphæ almost always escape, the former owing to their strength, the latter to their agility. The interest and importance of Professor Lischetti's observations need no emphasis. So far, it would appear, only culex larvæ have been the subjects of his experiments. It is to be hoped that they will be repeated as early as possible with larvæ of anopheles.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 7, 1920.

The Insurance Practice Settlement.

THE Ministry of Health has announced the names of the three gentlemen who have consented to act as arbitrators on the question of remuneration at issue between the Government and the medical profession, as laid before them by the assessors. The arbitrators are Mr. F. GORE-BROWNE, K.C., a Master of the Bench of the Inner Temple; Sir RICHARD VASSAR-SMITH, President of the Council of the Institute of Bankers and chairman of Lloyd's Bank; and Mr. J. C. STAMP, D.Sc., secretary to Explosives Trades, Ltd., and a member of the Royal Commission on Income Tax. Mr. GORE-BROWNE is to act as chairman. The exact terms of reference are:—

> To advise the Government what should be the amount of the capitation fee (per insured person per annum) on the basis of which the Central Practitioners' Fund under Article 19 (i.) of the Medical Benefit Regulations, 1920, should be calculated, so as to afford fair remuneration for the time and services required to be given by general practitioners, under the conditions set out in those Regulations, in connexion with the medical attendance and treatment of insured persons.
>
> This capitation fee is not to include any payment in respect of the supply of drugs and appliances (such payments being met out of the Drug Fund under Article 22), nor any payments to meet those special conditions of practice in rural and semi-rural areas which are covered by the payments to be made out of the Central Mileage Fund under Article 19 (ii.).

It was understood that the award was to be completed within four weeks, although we may well hope that agreement will be reached even sooner on an issue in which the materials for decision lie to hand.

The arbitration will, we may presume, settle the basis of remuneration for the time being; for although there are a number of practitioners in various parts of the country who are honestly satisfied that it is not for them to offer willing service on less than such-and-such a capitation fee, there is a very general desire to assist the Ministry of Health in administering medical benefit under the Insurance Acts at a difficult transitional period. The vital matter, in the minds of many, the good-will of panel practice, is not alluded to in the terms of reference. The action of the Cheshire Local Medical and Panel Committee illustrates how keenly this question is felt. At a meeting of this body, held at Crewe a fortnight ago, it was announced that agreement had been reached with the Cheshire Insurance Committee on the method of transferring a medical practice on the death of a panel doctor. This agreement requires the approval of the Minister of Health, and the Cheshire Panel Committee has resolved, failing the ratification of the agreement, to advise its constituents to decline service under the Insurance Acts. Cheshire doctors agree with their colleagues elsewhere that patients should have the opportunity for free choice, but they consider that, where choice is not exercised, patients should be allotted automatically to the successor of a deceased doctor, in so far as they do not lie outside his ordinary radius of practice. A similar clause was recommended by the Insurance Acts Committee of the British Medical Association to all Panel Committees, but the disapproval of the Ministry was signified in a circular letter issued on Jan. 19th. The objection of the Ministry was expressed in the following passage:—

> The Allocation Sub-committee, within their discretion may, of course, lay down general lines of procedure which they will in practice follow so far [illegible] they can consistently do so, having regard to the merits of the particular cases before them, and it is not desirable that their hands should be tied in advance in regard to the assignment of insured persons.

The objections, from the public point of view, of creating vested interests have prevailed.

Rules and regulations are necessary in any public service. They are the only means whereby a Government Department is able to maintain a standard of duty guaranteed by the Act of Parliament under which any service is instituted. But while regulations may cajole the wayward and keep up a show of energy in the slacker, they are often a source of chagrin and sometimes a positive drawback to the honest work of the conscientious man. Dr. ADDISON frankly recognised this, when faced by the deputation from the British Federation of Medical and Allied Sciences, which asked for a public inquiry into the whole working of medical benefit. The Panel Committees had, he reminded the deputation, given an undertaking through their representatives that a satisfactory service would be given in return for increased remuneration. Should any regulation prevent a practitioner from giving of his best, the Minister agreed to remove the restriction forthwith. That assurance may do for the present. Insurance practitioners demand no favoured position. Their standard of conduct is that of the rest of the medical profession, and the svere judgments which they pass upon the conduct of their colleagues are often a source of amazement to the Medical Service Subcommittees before which complaints against panel practitioners are lodged. What Insurance practitioners chiefly desire is to have elbow-room, in discharge of their duties towards their panel patients, wherein to practise their art without irksome supervision. Dr. ADDISON, we believe, admits this.

Symptomatic or Partial Diagnosis.

In a review published in The Lancet of Jan. 17th (p. 158) there occurs the terse dictum: "No man should be pensioned for D.A.H." This is a conclusion arrived at by Captain R. M. Wilson and Captain W. M. T. Wilson after an analysis of the various conditions lumped together under this vague and unsatisfactory grouping. The term "disordered action of the heart" does indeed occur in the 1918 edition of the official Nomenclature of Diseases to cover conditions as various as tachycardia, Adams-Stokes's disease, and Graves's disease, but a footnote is added to the effect that when the cause is known, return should be made under the head of such cause, the local condition being also specified. "D.A.H.," that is, should not be employed except as a temporary classification under conditions of active service to assist in evacuation and distribution. We have in essence a plea for accurate diagnosis. By a coincidence the same number of The Lancet contains a letter from Sir Thomas Horder referring to a well-known definition of medicine, attributed in its original form to more than one leader of our science—it runs, "Medicine has three parts: the first is diagnosis; the second is diagnosis; and the third is diagnosis." In this connexion we may repeat Dr. W. H. R. Rivers's definition of diagnosis which seems to us complete, and which led to Sir Thomas Horder's letter. Dr. Rivers says: "The word connotes the whole process by means of which we come to understand the nature of each individual case of disease, and analyse into its elements the complex web of agencies by which the morbid state has been produced." This covers the ground, and puts nomenclature into its right place as a convention necessary for the intercommunication of ideas.

In military medicine convenience, and perhaps necessity, have sanctioned the use of abbreviations or initials such as D.A.H., V.D.H., N.Y.D., and P.U.O. Written at length their insufficiency or even absurdity becomes apparent, but may we not ask whether many practitioners, who scoff at the obvious weakness of these abbreviations, do not often rest satisfied with equally incomplete tentative or deceptive terms, and fail to achieve a real diagnosis, when with further analysis or investigation such a diagnosis may be possible? Disease should be regarded as a dynamic rather than a static condition, and diagnosis should involve a recognition of the process rather than a mere statement of the resultant condition or its symptomatic expression. Too often diagnosis is incomplete because the observer rests content with the recognition of a symptom or a symptom-complex which may be common to many morbid processes. Jaundice, dyspepsia, D.A.H., and constipation are gross examples, which are only too apparent and can be indefinitely multiplied, but there are more complex and more subtle instances which are less obvious and therefore more dangerous. The labelling of all cases of arterial thickening as arteriosclerosis without qualification tends to render treatment of these conditions haphazard. The application of the useful term fibrositis to all and sundry pains in connective tissues may lead to ineffective treatment, or, worse, to disaster from the non-recognition of grave morbid conditions underlying the particular symptom. The terms functional disease, hysteria, and neurasthenia are frequently responsible for the failure to recognise serious organic disease hiding behind the functional exaggerations or mimicry of a fatigued, poisoned, or over-active nervous system. It is the morbid process in disease with which diagnosis is concerned, and scientific diagnosis is really an "insight" into disease.

It is sometimes useful for a medical man in charge of a difficult or a prolonged case to review his diagnosis, and, as it were, to look at the patient as a new case. Mistakes not infrequently occur from overlooking the obvious, from failing to notice some change in the patient or his physical signs, owing to the too ready acceptance of a tentative or partial diagnosis made in the early stages of an illness. A later observer, examining the case, takes a larger view, and with a more accurate perspective arrives at a correct diagnosis. The original observer, when it becomes clear that he has not arrived at the fundamentals, should hasten to put himself into this critical attitude. In the review to which we have referred, this question of accurate diagnosis is primarily considered from the point of view of the assessment of pensions—that is to say, from the standpoint of prognosis. But accurate diagnosis is essential for the effective treatment necessary to establish the forecast. Treatment has of necessity to be symptomatic or palliative where disease is advanced and incurable, or in cases where no specific or fundamental treatment is yet available, but the medical man who is satisfied to treat symptoms without first probing to the full after accurate diagnosis is not even a craftsman—much less the man of science he should strive to be.

Epidemic Dropsy.

"The triple scourge of war, pestilence, and famine disgraced the reign of Justinian," says Gibbon, and frequent repetition in history shows that their association is not fortuitous. As Dr. Douglas Bigland said in his interesting paper on œdema in food-deficiency diseases published in our columns last week, "Whenever there are wars, famines, and long voyages in ill-equipped ships; wherever persons are housed together under relatively bad conditions, as in asylums and prisons; wherever the population lives on a minimal or one-sided dietary, liable at times to be reduced to a fraction above nothing, there we have the conditions for the development of food-deficiency diseases and there we have epidemic dropsy." His paper and that of Dr. J. I. Enright, which we publish to-day, raise the question of the mechanism of the production of œdema by food deficiency and its relation to other recognised forms of dropsy. The appearance of epidemic dropsy in war is no new thing. It was observed in the American Civil War, but before long this was traced to nephritis. Similarly, when epidemic nephritis first appeared in Flanders in 1915, it was first recognised as epidemic dropsy. But these epidemics occurred in troops who were still well nourished and well fed, and were, therefore, quite different from the isolated outbreaks in India and Mauritius, and from those recently observed among Turkish prisoners of war and among the native troops in East Africa. After studying the Calcutta outbreak of 1908–09, Greig concluded that it was a nutritional disease, brought about by one-sided dietary. All the deficiency diseases are apt to present dropsy. Pellagra has been shown by Boyd and others to be due to the insufficiency of "biological" protein, which we take to mean the protein actually assimilated. Beri-beri and scurvy are both recognised to be deficiency diseases. Any disease which leads to blood destruction, such as malaria or ankylostomiasis, appears to help the production of epidemic dropsy, but in Dr. Bigland's opinion blood destruction is not adequate as a sole cause. Dysentery is often associated with epidemic dropsy partly because both diseases are common under conditions of food shortage, but also because dysentery means that such food as can be given is inadequately assimilated. The Lunacy Commissioners regarded the alarming increase of sickness occurring in the asylums of England and Wales during the years 1917–18 as due in the main to food deficiency, and the letter of Dr. W. F. Menzies in our correspondence columns sets out, from his own observation, the part which hunger œdema played in this increase.

A good case can, therefore, be made out for deficiency of vitamines as a cause of dropsy. We may next inquire as to the mechanism by which it is brought about. McCarrison has put forward the theory that the œdema of inanition and beri-beri is initiated by the increased intracapillary pressure which results from increased production of adrenalin, acting in association with malnutrition of the tissues. It is not clear how adrenalin would effect this, since the constriction of the arterioles produced would tend to shut off pressure from the capillaries. Dilatation of capillaries has been produced by minimal doses of adrenalin, it is true, but not by an increase over the normal amount in the circulation. C. Bolton's experimental production of œdema in animals is pertinent to the discussion. He tied off a portion of the pericardial sac so that the residue of the pericardium was too small for the heart, thus preventing its free expansion. This interference with its diastole caused distension of the great veins and then dropsy. Observations of the arterial and venous blood pressures did not suggest that a rise of capillary pressure was responsible for this. Bolton concluded that it was due to the increased permeability of the capillaries, brought about by deficient oxygenation of the blood and impaired nutrition of the capillary wall. We are still too apt to look upon the capillary endothelium as a mere passive membrane, through which filtration occurs. Yet it has been shown to have a great resisting and selective power as long as it is well nourished. An endothelium, such as Descemet's membrane, can withstand a high filtration pressure as long as it is alive, but rapidly swells up under such pressure if it is killed. Mott showed that the cerebral hæmorrhages which sometimes occur a few days after carbon monoxide poisoning are due to fatty degeneration in the capillary endothelium of the cerebral vessels. The carbon monoxide takes up so much of the hæmoglobin that there is not enough left to carry oxygen to the tissue cells. That the capillary endothelium should suffer so markedly shows how dependent it is on oxygen for its maintenance. Dale and Richards's histamine experiments point in the same direction. Again, temporary ligature of renal vessels is followed by albuminuria. The capillary endothelium is, in fact, intensely sensitive to changes in oxygen-supply, nutritive defects, and to toxins. The influence of toxins in renal dropsy is clearly shown by the fact that it occurs where the activity of the renal tubules is diminished, as in parenchymatous nephritis, and not in interstitial nephritis, even though the blood pressure be high.

In deficiency disease, where many tissues show damage, it is not surprising that the malnutrition should affect the delicate structure of the capillary endothelium, and that the resulting damage should express itself as undue permeability. This does not exclude an influence of the vaso-motor nerves. The famine dropsies of India presented paræsthesia and deep-seated pains as early symptoms, showing that the nerves were involved; while neuritis is the most prominent symptom in beri-beri. As to pellagra, Roaf in this country and Dr. Mary Morse in America have demonstrated structural changes in the sympathetic nervous system, and the associated eruption is probably due to the vaso-dilatation resulting from this, since the vaso-constrictors, being sympathetic in origin, would be damaged. Adrenalin defect would act in the same direction as impaired sympathetic tone, and might therefore be a factor, though adrenalin excess could hardly do so, in our opinion. But damage to the capillary endothelium seems the simplest and most generally applicable explanation of dropsy, whether in anæmia, heart disease, renal disease, or in failure of nutrition due to lack of vitamines.

His Majesty's Stationery Office regret that, the orders for Sir George Newman's Report on Preventive Medicine being so numerous, they have been unable to despatch copies as quickly as they would have wished. All orders are being dealt with as promptly as possible in rotation, and as supplies are received from the printers. It is not anticipated that there will be more than a few days' delay.

Annotations.

"Ne quid nimis."

DENTAL SEPSIS.

THE importance of dental sepsis in lowering the standard of national health is becoming generally realised. The subject was discussed at the Section of Odontology of the Royal Society of Medicine on Jan. 26th, when Mr. F. St. J. Steadman read a paper on Dental Sepsis in Children: Its Consequences and Treatment, which we give in full in another part of our present issue. Dentists, as a body, know the danger of an unclean mouth, but they feel, and say, that the family practitioner often does not take the matter with sufficient seriousness. The practitioner is probably aware of the dental condition of his patients, but does not make opportunity to study the problems. As a result of recruiting, however, figures are available which must carry conviction to all. The Departmental Committee on the Dentists Act obtained information on the state of the teeth of recruits joining the army during the war. In the Scottish Command it was stated that "recruits from industrial areas and of the artisan and labouring class show little or no evidence of having had any attention paid to their teeth previous to enlistment, and almost every man requires dental treatment." It was estimated that 44 per cent. of the men were dentally unfit in a military sense—i.e., they lacked the minimum of dental efficiency which would ensure effective mastication of food. In the Aldershot Command, out of 35,645 men examined 72·2 per cent. required dental treatment, of whom 10·9 per cent. wanted extensive treatment and dentures. There were needed 37,483 extractions, 42,974 fillings, and 4985 dentures. In the London Command about 70 per cent. required dental treatment; of these, 40 per cent. required extensive treatment extending over several visits, whilst 38 per cent. required treatment for a month or more, with many extractions and provision of dentures. In the Eastern Command 83 per cent. of recruits of 18 and 19 years of age required treatment, and 93 per cent. of those between the ages of 19 and 44. In the Eastern Command 97 per cent. exhibited dental defects, 75 per cent. of whom were in urgent need of treatment. So much for the condition of the male population. With regard to the women, it is said that:—

> "The evidence submitted to the Committee indicated that the condition of the teeth of the women of the nation is worse than that of the men. Having regard to the direct connexion between defective dentition and ill-health, a greater amount of sickness would naturally be expected in respect of women than of men. The results revealed by the working of the National Insurance Act are in accordance with this expectation."

There is no need to enumerate the various affections which result from dental sepsis, either directly or indirectly, but as an instance of the prevalence of disease attributable to defective teeth we may recall the report which was submitted to the Army Council by the Southern Command. Of 304 medical cases examined 160 were suffering from troubles directly attributed to defective teeth, and from 60 to 70 from troubles indirectly so attributed. As is very forcibly pointed out in Mr. Steadman's paper and in the discussion which followed (see p. 324), there are not nearly sufficient dentists to carry out the work which should be done, but the provision made for the adult among the poorer classes is even less than that made for the school child. It is very unfortunate that what is not only desirable but absolutely necessary is rendered impracticable by the dearth of registered dentists.

MINERS' NYSTAGMUS.

THE economic aspect of miners' nystagmus was the subject of a paper recently read before the North Staffordshire Institute of Mining Engineers by Dr. T. Lister Llewellyn. Although in times past the disease was attributed to the constrained position of the body and eyes necessitated by the miners' work, it is now generally recognised that the most important element in its causation is defective lighting of the mines. The disease was, in fact, unknown previously to 1850, when the safety lamp was introduced, and its incidence appears to vary more or less inversely as the brightness of the illuminant employed in any particular mine. Physiologically, the mechanism of vision is different in a dim light from what it is in a bright one. The importance of the fovea centralis no longer exists, and vision is actually better some 15° or 20° away from it, where the retinal rods, instead of being absent as they are at the fovea, are at a maximum. Another factor in the causation of nystagmus is the crystalline surface of the coal face, which reflects light from innumerable facets, the one that happens to reflect most light into one eye being different from the one that reflects most light into the other. Yet another factor is probably some instability in the cerebral centres which regulate the reflex action of the eye muscles. An insufficiently understood fact is that the physical sign may persist for a long time without causing any symptoms, but any slight accident, or even the mere suggestion due to a medical examination in which the unconscious subject of nystagmus is told of his defect, may give rise to marked subjective symptoms.

The disease is one of deliberate onset, the average number of years of underground life before failure being 25 according to Dr. Llewellyn. It follows that the full benefit of any remedial measures will only gradually become apparent. The most important remedial measure called for is not in any manner of doubt—it is to devise a better illuminant for the safe lighting of mines. Dr. J. S. Haldane, in supporting Dr. Llewellyn's plea for better lighting, states that in American mines an electric light is carried on the cap or on the body in front, and connected by a cable to the accumulator carried on a belt behind, and that this method appears to solve the problem satisfactorily. If this is so, the £100,000 called for by Dr. Llewellyn to endow a research for a better illuminant for safe lighting would seem superfluous. In any case, since the loss to the State owing to this disease alone is estimated at no less than a million a year, it is plain that some action is urgently required. The discussion on Dr. Llewellyn's paper elicited an interesting fact. Mr. Caleb Johnson stated that six years ago electric lamps were installed in one of two pits working the same seams—at the same depth and by the same method. "As the result of six years' working these were the results obtained. In the pit where electric lamps were used 50 per cent. of the workings were lighted by electric lamps, about 70 to 75 per cent. of the men at the face having electric lamps. In that pit the cost of nystagmus was something less than one-thousandth part of a penny per ton of output. In the other pit, where oil lamps were still used, the cost of nystagmus was about three-fifths of a penny per ton of output." Again, as to accidents: "In the colliery where they had electric lamps he found that for every 53 shifts that had been worked one had been lost through accident. In the oil-lamp pit, for every 22 shifts worked one had been lost through accident. Further, the output per shift per person had been greater in the electrically-lit pit than in the oil-lamp pit." Another speaker raised the question of how far nystagmus may be due to other causes besides defective lighting in the pits. Congenital nystagmus and nystagmus from blindness in infancy, as well as from other causes, are well known, but this does not affect the fact that so far as the disease is due to the miners' vocation defective illumination is the prime factor in its causation.

VOLUMETRIC TESTS ON SCIENTIFIC GLASSWARE.

THE new facilities in regard to the standardisation of laboratory glassware recently announced by the authorities of the National Physical Laboratory, Teddington, deserve the attention of all those engaged in scientific work. We need hardly remind our readers that the manufacture of volumetric scientific glassware is an industry which was practically non-existent in this country before the war. It has since developed satisfactorily, and the high position it has gained should never be lost. The essential point is accuracy of measurement or calibration, and in this matter the authorities at Teddington are giving British manufacturers every possible assistance in undertaking for quite modest charges the work of standardising the apparatus they make. Scientific work is clearly advanced when the instruments employed in it can be obtained with a hall mark verifying measurements. The following paragraph, taken from the *Economic Review* (Jan. 21st), is interesting in this connexion:—

> *Faulty German Thermometers.*
>
> The *Chemiken Zeitung* (Dec. 30th) calls attention to the complaints current in Holland and Switzerland concerning German clinical thermometers, some of which are said to be useless. Although provided with a "test certificate," these thermometers have proved quite unreliable, errors of as much as 0·5 to 1°C. being registered. The *C. Z.* urges that measures should be taken to maintain the reputation of German manufactures.

These are just the measures which our National Physical Laboratory at Teddington is taking to maintain the reputation of British manufactures.

THE INDEPENDENT LIFE OF TISSUES.

IT IS now a commonplace of thought among the better-educated part of the community that the bodies of animals consist of masses of cells, differentiated structurally and functionally to serve the purposes of the general mass, whose individuality is the summation of the characteristics and activities of all the individual cells. This conception of the complicated structure of animals finds in recent years its most striking confirmation in the fascinating work of Ross Harrison, Burrows, Carrel, and numerous other American investigators on the cultivation of tissues in vitro. The conditions which determine whether a cell can live in artificial culture are similar to those which the body naturally provides. An adequate supply of appropriate foodstuffs, oxygen for the processes of combustion, removal of carbon dioxide and other waste products, and, what is now more clearly realised as an indispensable condition of cell growth and activity, a scaffolding or supporting framework. The provision of all these conditions for a cell outside the body is exceedingly difficult and represents a technical accomplishment upon which the American scientists have earned universal congratulations. The extent of the success which has already been achieved is shown by a contribution to the *Journal of Experimental Medicine* for December, 1919, in which Dr. A. H. Ebeling gives an account of his work in maintaining in culture a piece of connective tissue which was isolated by Dr. Alexis Carrel from a fragment of heart taken from a seven-day old chick embryo in January, 1912. This tissue has now been kept in cultivation outside the body for a period of over eight years, undergoing during the last seven years 1390 passages. The cultivation of animal tissues can in some respects, therefore, be compared to the work of the bacteriologist who keeps alive in artificial media species of bacteria which are never found outside the body. The difficulties are greater, but the principle is the same. It is still rather an astonishing thing to regard the cells of the heart as individuals which may be transplanted from day to day in artificial media and maintained in what may be called a condition of robust health. From these results it would appear that we are justified in looking upon the cells of animals as potentially immortal. Their death in nature is dependent upon accidents to the complicated mechanism of which they form a part. If the manner in which these accidents occur were completely known, and could be avoided, the individual cells would certainly go on living and performing their function for periods far greater than are customarily assigned as the limits of life to the species. The principal aim of medical science is to discover the mode in which the apparatus of the vast colonies of cells is disintegrated; and, given any measure of success in this, the work of Carrel and his colleagues affords grounds for the hope of immensely prolonging the life of man.

THE MEDICAL REPORT AS POPULAR EDUCATOR.

THE vast difference in educative value between the reports of various medical officers of health, to which we devoted a leading article in THE LANCET of Jan. 3rd, was seen to depend largely on the trouble taken to summarise the figures in readable form for the benefit of the lay public, and to make appropriate deductions therefrom. It was emphasised then that neglect to do this was more often a question of pressure of work than of unwillingness to trouble to make an annual survey of the local position in public health. Moreover, some medical officers maintain that the correct interpretation of vital statistics is an intricate and difficult task best left to the biometrician, and that their own function is confined to the accurate presentation of facts. A Memorandum (No. 9/Med.) just issued by the Ministry of Health deals with the contents and arrangement of the annual reports of medical officers of health for 1919, and should be of the utmost help towards their compilation. Directions are given as to the scope and type of information desired under the various main headings, which include natural and social conditions of the district, sanitary circumstance of the district, food, prevalence of and control over infectious diseases, maternity and child welfare, sanitary administration, other services, and housing. The portion of the report on housing is, on this occasion, to be bound separately in order to facilitate its perusal both locally and in the Housing Department of the Ministry of Health, but this fact is to be indicated in the relevant portion of the main report and detailed references inserted. If all medical officers of health adopt the official plan, and treat the subjects in the order indicated in the Memorandum, comparison of reports from different areas will be easy and experience can be pooled.

In a covering letter the secretary to the Ministry of Health dwells on the importance of these comparisons and the impotence of isolated effort. He emphasises the necessity of local distribution and publicity to engender popular interest and enlighten public opinion. An increase of public knowledge and interest in these matters, it is suggested, may also become an effective means of educating the citizens in the more important conditions of public health, of warning them against particular dangers, and of securing that highly important coöperation and confidence between them and the health authority and its staff which is essential to successful health administration.

THE NEW REGULATIONS FOR MEDICAL BENEFIT.

WE understand that a letter has been sent to all Members of Parliament by the Federation of Medical and Allied Societies, begging them to support a demand for an inquiry into the regulations under which medical benefit is obtained through panel practice, before any expansion or alterations in the provisions of the Insurance Act are proposed. This action of the Federation arises out of the reply given by Dr. Addison to the deputation which he received a few days ago, when he promised that he would unhesitatingly recommend such an inquiry, after receiving a report from the Medical Consultative Council, should he thus become convinced of the advantage to be derived. The Federation will be in a stronger position to criticise any existent or intended methods when the Medical Consultative Council have spoken; but they desire to keep before Parliament the urgency of the questions involved.

THE SMALL-POX MENACE.

WE have had occasion during the past two years to direct the attention of our readers[1] to the danger arising from the importation of small-pox infection from abroad, particularly in connexion with the return of our sailors and soldiers from parts of the world where the disease has been prevalent, or even severely epidemic. During 1917 only 7 cases of small-pox were notified in England and Wales; in 1918 the number increased to 51 in the urban and rural districts, along with 12 others in port sanitary districts, making a total of 63 cases for the year. But in the first half of 1919, according to an interesting contribution by Dr. R. J. Reece, published in the forty-eighth and last annual report of the Medical Department of the Local Government Board, there were no fewer than 179 notifications of small-pox in the urban and rural districts of England and Wales, as well as 29 others at our ports, making in all 208 small-pox cases in England and Wales during a period of six months. It is worth noting that a number of the local outbreaks in the first half of 1919 were traced to infection brought by soldiers returning from infected countries, such as Italy, Greece, and Egypt, while other groups of cases owed their origin to infection brought home by civilians or sailors from foreign ports in Spain or Portugal. The occurrence of severe epidemics of small-pox after great wars is a fact well recognised by epidemiologists. If it had not been for the care exercised at our ports in recent years the infection introduced from abroad would have led to a far greater prevalence, if not an actual epidemic, of the disease in our country. There is also no doubt, as Dr. Reece points out, that the prompt notification of cases, the speedy isolation of the patients, and the diligent inquiry made as to contacts all contributed to the successful prevention of the spread of the infection. Such measures, alone, however, cannot be implicitly trusted when small-pox invades an unvaccinated community. The long-continued absence of epidemic small-pox from our land has given rise, in many persons, to a false sense of security, and in consequence vaccination and revaccination have been neglected. In this connexion Dr. Reece mentions in his report that small-pox was contracted by some persons who had been in contact with patients, and who had refused the timely offers of vaccination or revaccination; there were instances also where even doctors, nurses, or members of the staff of the local sanitary authorities fell ill of small-pox, having trusted too much to their primary infantile vaccination, instead of seeking revaccination at adult age. A considerable proportion of our adult male population, who have been on military service, have been revaccinated, and are therefore protected (though, unfortunately, not all who went to the front were revaccinated); but, on the other hand, the vaccination of infants has been growing less and less of late years. Dr. Reece estimates that at present about half of the children of England and Wales under 10 years of age are unvaccinated. In pre-vaccination times the mortality from small-pox was greatest in those under 10 years, the majority of the deaths being children under 5 years of age. Should small-pox again become epidemic in our country we may witness a return to the old state of things and see many children die of small-pox whose lives could have been saved if their parents had accepted the opportunities afforded to them by the State for infantile vaccination.

THE FRANKNESS OF THE PHYSICIAN.

SOME few weeks ago Mr. C. E. Montague gave an address to the members of the English Association at Manchester University upon clearness in imaginative writing, and came to the conclusion that too much clearness was to be deprecated. "Every urbane writer, even when greatly explicit, would stop short of expounding the last detail of his meaning. ...... The best of imaginative writing has its leaves in the light and its roots in the darkness. ...... It is more blessed for a reader to guess right than to be told." Most of us will agree with Mr. Montague so far as literature goes, but the leaving of the reader to guess the writer's meaning produces in many instances extraordinary results. For instance, there is perhaps no one line of poetry in any language which has been more quoted, more discussed, and more misunderstood than—

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[1] Vide THE LANCET, August 17th, 1918; and August 23rd, 1919.

"Sunt lacrymae rerum et mentem mortalia tangunt."

and all kinds of meanings and undercurrents of feeling have been read into this line, varying according to the taste and fancies of the readers. But, as shown by a writer in the *Classical Review* (February–March, 1919), all the presumed difficulty has arisen from the line being divorced from its context, and if taken in connexion with the accompanying lines its meaning stands out perfectly clearly. Here the guesses of readers have led them into a morass, but if Virgil had written a baldly clear statement much of the charm of the passage would have been lost. If we pass to the question of too much clearness in other departments of life we are met by the problem, "How far is it desirable to tell the whole truth?"—and this is a problem the solution of which very often affects the medical profession. Dr. Batty Shaw, in a paper which appeared in our issue of Jan. 24th, laid stress upon the fact that "probably all children ...... living under the conditions of civilisation are infected by *B. tuberculosis*." Further on he said, "I think that the subject of tuberculosis has become popularised too much, or should I say has been only partially popularised. It is more palatable to a lay audience to listen to the accounts of the marvellous cures which have come as a result of this, that, or the other treatment. It is not at all palatable, and lay men and women would not be tempted to join associations for the study of this disease if they were told the whole truth." Here, then, is one instance where the problem above mentioned comes forward for solution. If the average layman knew the whole truth, would it make him throw up the sponge in the contest against tuberculosis or would it stimulate him to further exertions? In this case the knowledge or reverse of the truth affects the community as a whole, but the same problem arises as affecting individuals in those many cases which arise in medical practice where it becomes the medical man's duty to decide whether or no he should tell his patient, or those responsible for the patient, the whole truth as to the disease from which that patient may be suffering. Hope, as everyone knows, is a large factor in recovery, and to dash such hope to the ground may be the last impulse which sends the sufferer into the abyss. But, on the other hand, there are cases in which, so far as human knowledge can tell, the patient is absolutely doomed; what should be the medical man's action then? In our opinion there can be no hard-and-fast rules for action laid down, for so much depends upon the individual circumstances of each case. May there not be too much clearness? Sometimes, surely, to paraphrase Mr. Montague's words, "It is more blessed for a patient to guess right than to be told."

INFLUENZA: PREPARATIONS IN SCOTLAND.

CORRESPONDING to the advice given by the Ministry of Health to medical officers and local authorities in England and Wales, a circular on the risk of a general outbreak of influenza has been issued by the Scottish Board of Health to authorities and officers in Scotland. The circular emphasises the importance of having in readiness a preconcerted scheme to meet the outbreak if it should come. The scheme recommended by the Board, subject to modification to meet local conditions, is as follows.

1. The local authority should appoint a small emergency committee to whom, with the medical officer of health, would be delegated full powers to act and incur necessary expenditure.
2. Medical practitioners and voluntary health workers should be consulted and their coöperation invited. The coöperation of the local employment exchanges of the Ministry of Labour should be invited also, in order that the opportunities for service may be brought under the notice of suitable persons.
3. A scheme should be drawn up for the provision of medical nursing and other assistance to the sick, and for the employment of women as home helps in cooking, care of children, and domestic work.
4. Arrangements should be made by which health visitors and other members of the staff of the local authority and of its institutions may be used to the best advantage and temporary creches and special kitchens promoted. The prophylactic inoculation of the staff of the health department and of nurses, home helps, and other workers under the scheme may be taken into consideration.
5. Wards of the infectious diseases hospitals of the local authority and of general hospitals should be set aside for the treatment of cases of influenza judged to require hospital treatment and the provision of emergency hospital accommodation should be arranged for in case of need.
6. Steps should be taken by the local authority to prevent overcrowding and to secure adequate ventilation in public buildings and public conveyances.
7. Notices and leaflets should be prepared for issue to the people having reference to the importance of free ventilation; the avoidance of needless exposure to infection; the necessity to keep away from places of public resort; and similar points; and furnishing for public information suitable details of the local authority's scheme.

The Board is prepared to supply gratis to medical officers of health, for distribution to practitioners and hospitals in their areas, supplies of recently produced vaccines against secondary infections. These are not intended to replace any other vaccine, prepared from a local strain, which may be in use in different localities.

RUPTURE OF AN AORTIC ANEURYSM INTO THE LEFT INNOMINATE VEIN.

RUPTURE of an aortic aneurysm into the superior vena cava is so rare as to be among the curiosities of medical literature. Dr. J. B. Herrick has recently reported[1] a case of rupture into the left innominate vein within less than a third of an inch from its debouch into the cava, which can therefore be classed under the same head.

The patient, a medical practitioner, aged 33 years, had suffered for 6 months from pains in the chest which at times extended to the right arm. He denied syphilis, but the Wassermann reaction was strongly positive. One evening while ascending stairs he had a feeling of something giving way in his chest, and his face and neck felt flushed and full. The sense of choking and pressure was so urgent that he tore open his collar and the neckband of his shirt. While trying to turn on the electric light he lost consciousness. How long he lay on the floor in a swoon was not known—he thought about 20 minutes. On recovering he turned on the light and looked in the mirror, and saw that his neck and face were swollen and "almost black." Breathing was difficult and he summoned aid by telephone. During the next five weeks he suffered from dyspnœa, at times amounting to orthopnœa. Attacks of coughing, with choking sensations and cyanosis, seemed to threaten death. He became weak and irritable, and at times was somewhat delirious. At the end of this period he came under Dr. Herrick's observation. The picture was such as he had never seen before. The face and neck, as well as the chest wall, were swollen, as in the anasarca of chronic parenchymatous nephritis. The injected eyeballs bulged through the narrow slits between the swollen lids. But instead of the pasty nephritic pallor, the patient's colour was almost black, a tint observed only in extreme cyanosis. The visible veins were distended and tortuous. The contrast between the bloated, dark upper half of the body and the pale, emaciated lower portion was remarkable. The patient had the spindle legs of the last stage of wasting disease without œdema. The abdominal wall was slightly œdematous above the umbilicus. The line of separation between the pale, flaccid abdominal wall and the swollen, purplish chest wall, which was hard and brawny, pitting only on firm pressure, was almost as clear cut as the line of demarcation in a case of gangrene. The cardiac outline was difficult to determine because of the thick, œdematous chest wall. At the base of the heart and over the manubrium was an increased area of dullness. A systolic murmur, which lasted into the diastole, was heard over the precordium and in the interscapular region. At the aortic cartilage it was most intense, continuous, soft, blowing, and somewhat humming. Numerous râles, moist and dry, were heard over the lungs, particularly behind. At the bases there was some dullness, with obscuring of breath sounds, as from pleural effusion. Breathing grew more and more difficult, dysphagia developed, and sleep was possible only by the aid of drugs. A radiogram showed a shadow as from an aneurysm of the aortic arch. He gradually lost strength, and died eight days after he came under observation. The necropsy showed old and active aortitis, typically syphilitic. The aneurysm originated 4 cm. above the aortic valves. The sac projected so as to press on the superior cava, especially near the heart. The opening into the vena cava was 1·5 cm. in diameter. The innominate and azygos veins were much distended.

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[1] American Journal of the Medical Sciences, December, 1919.

The case narrated conforms to the description given by Pepper and Griffith[2] in their classical paper on Rupture of Aortic Aneurysm into the Superior Vena Cava. They found records of 29 cases. With the present case the number now reaches 43. While the typical case permits of diagnosis, variations in the size of the aneurysm, in the point of pressure, and in the degree of obstruction may cause difficulty. Treatment can be only palliative. Bleeding has been of only temporary benefit. Death may occur soon after the accident, or be postponed many weeks or even months.

SILENT RENAL CALCULI.

Dr. Edmund L. Young, jun.,[1] of Boston, states that in 3960 autopsies performed at the Massachusetts General Hospital since 1896 stones were found in the kidney or ureter or both in 45 cases. In 7 cases operations had been performed for stone, and one small stone out of many, or a fragment from a large stone, had been lost in a pyonephrotic cavity. In a bilateral case one side had been operated on and the other was to have been done later. One case with calculous pyonephrosis died without operation. In the remaining 37 cases the patients were in hospital for some other condition than stone in the kidney. Stones were known to be present in three of these, but had nothing to do with the condition from which the patient suffered and ultimately died. There was only one case with a completely negative history and urinary findings and a normal kidney on naked-eye and microscopic examination, but there were four cases without symptoms and with a negative urine, six cases without any damage to be demonstrated at the autopsy, and 15 cases in which the damage was too slight to compromise the integrity of the kidney. On comparing the clinical and pathological aspects it was found that one patient who was known to have had a stone for six years had a negative urine and a normal kidney. Another patient who had passed stones for at least seven years had a negative urine and a kidney which was normal apart from a very slight dilatation. Of the four cases without symptoms and with a negative urine only one showed an entirely normal kidney; it contained many small stones in the calices and the pelvis. The other three were, however, essentially normal, some interstitial changes and atrophy of renal elements being the only lesions noted.

MULTILOCULAR HYDATID DISEASE.

Multilocular (also called alveolar) hydatid disease was first recognised and described in Germany by Virchow in 1855. Previous to his description, the cases when met with appear to have been regarded as alveolar colloid cancer. The liver was for a long time the only organ known to be affected, and the few recorded cases have come principally from Russia, South Germany, and Switzerland. Writers have been much exercised as to the way the formation arises. It is known that exogenous budding, with the production of external daughter-cysts, is a phenomenon exhibited by some hydatid cysts, just as internal daughter-cysts occur from endogenous growth. It is stated by Neumann that the two kinds of budding—exogenous and endogenous—are not generally found in the same echinococcus, nor in the same host. If this is true, it would seem as if there existed either an influence derived from the tissues of the host or a special propensity implanted in some races of the parasite.

After the typical picture of multilocular hydatid had been established from examination of liver specimens a new series of echinococcus tumours began to be observed. These appeared to have their primary seat in bone. Virchow stated in 1883 that multilocular hydatid of the liver and hydatid of bone were the same disease. Moreover, he regarded the echinococcus of the multilocular form and that of the cystic type as the same parasite under different conditions of life, and especially of pressure in dense tissues. This theory would hardly suffice to explain why the cysts continued to be small in collections situated in the soft tissues of the interesting case described by Dr. C. E. Corlette, of Sydney, in our present issue; for instance, those in the left thigh, in the right retroperitoneal region, or above the spleen. Compression could not there be the cause of their small size, and it is probably partly a question of nutrition and partly of the mechanical conditions, since the cysts were naked and quite free, like marbles in a bag, and the large ones probably got ruptured.

Dr. J. B. Cleland, principal microbiologist of New South Wales, has compiled a bibliography and short abstract of those cases of hydatid disease of bone recorded in Australian periodical literature. About 18 separate cases have been recorded, of which 5 are in the femur, 3 in the sacrum or coccyx, 2 in the tibia and the ilium, and 1 in each of the following bones: vertebra, skull, superior maxilla, humerus, a rib, terminal phalanx of a finger. The records show that when the bones of the limbs have been attacked there has been a marked propensity to fracture, and that the nidus has practically always been in cancellous bone. The question how the hydatid embryo gains its entry to the bone, and the cause of its predilection for certain bones, remain obscure.

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[2] Trans. Assoc. of American Physicians, 1890.

[1] Boston Medical and Surgical Journal, Nov. 13th, 1919.

The suggestion that multilocular hydatid disease is caused by a parasite distinct from *T. echinococcus* was made by Melnikow-Raswedenkow, and appears to have impressed the late Sir Edward Stirling and Sir Joseph Verco, who gave an extensive abstract of his views in Allbutt and Rolleston's "System of Medicine" (1905). The theory is founded on the structural difference between the cysts, and especially on the presence of reproductive material on the outside of, as well as within, the cysts in the alveolar as opposed to the hydatidiform cysts; also, on the far greater inflammatory reaction in the surrounding tissues in the alveolar form. However, since it is stated by Stirling and Verco that certain cases, at any rate, of hydatid infestation of bones contain the ordinary *Echinococcus hydatidosus*, the association in Dr. Corlette's case of bone hydatid and multilocular hydatid disease of the lung becomes interesting in connexion with the ætiology. The coincidence of a double infection in one individual seems on the whole more improbable than a different form of lesion caused by the same parasite under different conditions. On the other hand, the geographical distribution of multilocular hydatid disease in man is a point in favour of its separate origin. C. W. Stiles and Ramsay Smith take this view, though the latter, working in South Australia, has found over 1000 cases of multilocular disease in animals. The problem is not yet settled, but the curious lesions in Dr. Corlette's case suggest that after all one parasite may be the cause of all hydatid infections.

A LONG list was announced last week of appointments to the civil division of the Order of the British Empire for services during the war in connexion with military and civil hospitals, command depôts, and convalescent camps. Mr. J. F. Colyer, whose work at the Croydon War Hospital has marked an epoch in the treatment of injuries of the jaw, becomes a Knight of the Order, and about 140 names appear as Commanders, Officers, and Members. We call special attention to the list of Commanders given on p. 349, since the *Times* of Jan. 31st conferred a week-end knighthood on these gentlemen, whose embarrassment was not entirely outweighed by the pleasure given to their friends.

AS we announced last week, Dr. R. J. Reece, C.B., has been appointed to be one of the senior medical officers of the Ministry of Health, and the appointment has caused much satisfaction in the service. Dr. Reece's comprehensive knowledge of preventive medicine and his judgment and ability in dealing with matters relating to public health have long been recognised by those with whom his official duties have brought him in contact.

THE LANCET, Jan. 3rd and 10th, 1920.

THE Manager will be obliged to readers who have not any further use for their copies of THE LANCET of the above dates if they will kindly return them to him at 1, Bedford-street, Strand, W.C. 2. The postage on the numbers is one penny each. He will be pleased to pay for copies returned, as he is disposing of them again to new subscribers.

THE FEES OF OUR ANCESTORS.[1]

BY SIR D'ARCY POWER, K.B.E., F.R.C.S. ENG.

OF the fees gained by the medical profession we may say with Koheleth, the gentle cynic, "That which hath been is that which shall be; and that which hath been done is that which shall be done and there is no new thing under the sun." In the fourteenth century, which is the earliest period of which I have any knowledge of surgical fees in England, the conditions were very similar to our own. Fees were high and, at any rate on the surgical side, the patient was expected a threefold debt to pay. He paid a sum of money down, he contracted to give his surgeon an annuity of so much—seemingly as long as he survived—and he gave one or more suits of clothes—liveries—yearly. This was truly a full dress fee. Here are the details of such a transaction by John Arderne, an English surgeon living between 1307 and 1390, who says, "Ask of a great man an hundred marks or forty pounds with robes and a fee of an hundred shillings yearly for life. Of less men let him ask forty pounds or forty marks without further fees; and let him take not less than an hundred shillings for never in all my life took I less than an hundred shillings." The annual income of a labourer at this time may be estimated at £4, and out of this it was possible for him to save a pound. The surgical fees, therefore, were very high, and as many of Arderne's patients are known to have lived for many years after he operated upon them he ought to have amassed a considerable fortune. I am quite unable to discover how the surgeons at this time invested their money if they did not buy land, and many of them certainly did not do so. It was hazardous to lend to the Crown; there were no funds or Government securities, and there were no Jews. Although the fees were large the surgeon could not have had more than two or three patients a year, for it was his duty to live in the castle or house until the cure was complete, although there were certain itinerant surgeons, sons of Belial, who would take the fee in advance, operate, and then disappear on the following day. It was thought that such men brought discredit on the art of surgery.

Medical Fees in the Elizabethan Period.

The Wars of the Roses impoverished England in the fifteenth century, and very little is known of surgical practice until the time of Elizabeth, when payment for services rendered had undergone a great change. It was then usual to contract to cure the patient for a given amount, paid either wholly in money or partly in money and partly in kind, or perhaps very often wholly in kind, for surgeons at any rate were not particular as to how they were paid so long as they got something. Here again are instances of each method: "On 19th April, 1569, the wife of William Selby, of London, ironmonger, complained that William Wise had not cured her husband's leg as he promised to do, and it was ordered that he should repay again of the money which he received in part of the bargain six shillings and eightpence." A few years afterwards, on Oct. 2nd, 1576, "a complaint was made by Thomas Adams against John Paradice, because the said John had received money in hand and a gown in pawn for the remainder to cure the daughter of the said Thomas, which daughter died and the poor man made request for the gown again." The custom of contracting for a cure extended throughout the surgical profession at this time, for even William Clowes, the Queen's surgeon "was complained of by William Goodnep, in February, 1575, for not curing his wife *de morbo gallico*, and it was awarded that the said Clowes should either give the said Goodnep twenty shillings or else cure the wife." Clowes very wisely agreed to pay the twenty shillings. The fee at this time was a noble, and later an angel, for those who corresponded to our consulting physicians and surgeons. The practice of an annuity still lingered, for as late as 1660 Wiseman writes of a patient upon whom he had operated: "This person retired into the country and returned to London at the end of two years and acknowledged to me his cure by settling thirty pounds a year upon me during his life and paid me sixty pounds for the two years passed."

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[1] A short address delivered at the Social Evening of the Royal Society of Medicine on Jan. 30th, 1920.

Origin of the Guinea Fee.

A new coin—the guinea—was struck in 1660, and it was quickly utilised by the doctors, who demanded it for a fee somewhat to the displeasure of the older generation, for the author of the "Levamen Infirmi" writes as late as 1700: "To the graduate in physic his due is about ten shillings, though he commonly demands or expects twenty; those that are only licenced physicians their due is no more than six shillings and eightpence, though they commonly demand ten shillings. A surgeon's fee is twelvepence a mile for his journey far or near; ten groats (3*s.* 4*d.*) to set a bone broke or out of joint; and for letting of blood one shilling; the cutting off or amputation of any limb is five pounds, but there is no settled price for the cure." The value of the noble, the angel, and the guinea, the successive units of fee in England, was never stable; the noble and angel varied from 6*s.* 8*d.* to 10*s.*, whilst the guinea, which was at first worth twenty shillings, sometimes rose as high as 30*s.*, and for many years was never less than 21*s.* 6*d.* A guinea was the regular consultation fee from the time of its introduction until about 1870, when the cost rose to two guineas. The two guinea fee remained until 1918, when it became three guineas.

Fortunes Made by Medical Men.

Very large sums of money were earned by successful physicians and surgeons in London during the eighteenth and nineteenth centuries, as there were few consultants in the provinces, and wealthy patients and serious cases gravitated to London. Dr. Radcliffe and Dr. Mead made their fortunes by seeing patients at their own houses or in consultation at a guinea apiece, whilst they wrote prescriptions for patients whom they had never seen (from descriptions of the case given by the apothecary in attendance) at half a guinea a bill. Dr. Radcliffe, when he was living in Bloomsbury-square, charged five guineas for a consultation at Bow. No inconsiderable portion of a successful consultant's income came from long journeys, and it is marvellous how they not only became inured to the fatigue and discomfort of travelling on bad roads, but were actually able to produce good literary work in their carriages. There is the well-known story of the collective power of the guinea in the case of the physician who declined to accept a fee from his patient, but was unable to refuse when the patient gave him a bag full of guineas filled by the simple process of dropping a coin into it after each visit; or the other story of the doctor who had his fee hurled at him by an eccentric patient and merely remarked that he would pocket the insult. There are several large fees on record. One of the best known is that received by Dr. Dimsdale, who left England at the desire of the Empress Catherine of Russia on July 28th, 1768, and returned in 1769. He introduced the inoculation of small-pox into Russia, and inoculated the Empress and about 140 other persons. He was rewarded for his services with the dignity of a Baron of the Empire, a present of £10,000, and an annuity of £500. The Dowager Lady Dimsdale has kindly referred to Baron Dimsdale's diary, and tells me that although the annuity is mentioned nothing is said about the present of money.

Another celebrated fee was received by one who, I am glad to say, is not a predecessor, for he is in robust health, and will, I hope, long remain so. It was a lakh of rupees, which at the present rate of exchange is worth £12,000, and by his kindness I am able to show you the illuminated tablet in Persian which accompanied the gift. Sir Peter Freyer received the fee in August, 1888.

Country Practitioners' Fees.

Very little seems to be known about the fees charged by country practitioners. Dr. Edward J. Cross, of St. Neot's, has kindly lent me a very interesting ledger showing detailed accounts of the firm, which still exists, for the years 1742–1755. Each item is priced, and ranges from 2*s.* for a bottle of medicine to 3*d.* and 6*d.* for a pill, whilst a visit, or "iter" as it was called technically, was from 2*s.* 6*d.* to 4*s.* 6*d.*, according to the distance. The total account rarely exceeded £5, and was usually under £1. The patients paid at long intervals, and generally only part at a time. We know from the evidence given by Abernethy at the Royal Commission in 1834 that these charges were the usual ones in the country, for he states that "I was called into the country to see a patient in consultation with his family practitioner and I ordered the patient a pill. When we left the room the doctor said, 'Do you mind making that pill into a mixture?' I said, 'What difference does it make?' He replied, 'None to you but much to me. If you order him a pill I shall have to come to-morrow to see how it has acted and I shall only get threepence for my trouble and I must supply the pill, but if you put it into a bottle I shall receive a more adequate fee.'" Indeed, until 1815 the general practitioner was remunerated entirely by the amount of medicine he could induce his patients to swallow and not at all for his skill and attention. The end of this bad practice was a side issue of the tax upon glass imposed in 1812. Bottles became so expensive that the general practitioner was obliged to reconsider his position, and thence arose the agitation which culminated in the Medical Act of 1815. The practice of extensive dosing lingered amongst the people until our own time, and the familiar expression of "a blue pill and black draught" is a reminiscence of the time when 6 or 12 1-oz. phials were sent out in packets neatly wrapped up in white paper, each phial having a single blue pill in a small box, with white ends and a red body, perched upon the top of the cork. The price was 1*s.* 9*d.* a draught and pill, and there was, I presume, a handsome profit, which was lost when 8-oz. and 12-oz. mixtures came into vogue.

Conclusion.

And thus I come back to Koheleth's statement that there is nothing new under the sun, for if we consider the relative purchasing power of money in the eighteenth and twentieth centuries our predecessors were better paid than are the majority of the medical practitioners at the present time. The type of practice has changed; the type of mind remains. The older generations demanded bleeding and plenty of physic; the modern generation asks for serums, vaccines, and intravenous injections.

THE SCOTTISH BOARD OF HEALTH:

CONSULTATIVE COUNCILS.

IN the Act which established the Scottish Board of Health provision was made for the setting up of Consultative Councils to advise and assist the Board in connexion with Scottish health matters. The constitution and functions of these Councils were defined by an Order in Council of Dec. 20th last. The Councils, which are four in number, deal with the following matters: (1) Medical and allied services; (2) National Health Insurance (Approved Societies' work); (3) local health administration and general health questions; (4) Highlands and Islands.

The appointment of the members of the Councils rests with the Board, who have now completed their selection of the personnel of each of the four Councils. The membership of the several Councils as announced by the Board is as follows:—

1. MEDICAL AND ALLIED SERVICES.

Orlando Charnock Bradley, Esq., M.D., D.Sc., M.R.C.V.S., Principal of the Royal (Dick) Veterinary College, Edinburgh; Vice-President of the Royal College of Veterinary Surgeons; President of the National Veterinary Medical Association.

A. J. Campbell, Esq., M.D., Secretary of the Berwickshire Local Medical and Panel Committees.

A. K. Chalmers, Esq., M.D., Medical Officer of Health for the City of Glasgow.

D. Elliot Dickson, Esq., M.D., Convener of the Fife Colliery Surgeons' Committee.

J. R. Drever, Esq., M.B., Scottish Medical Secretary of the British Medical Association.

Miss Annie W. Gill, Lady Superintendent of Nurses, Edinburgh Royal Infirmary.

John Glaister, Esq., M.D., Professor of Forensic Medicine and Public Health in the University of Glasgow.

Professor Matthew Hay, M.D., Medical Officer of Health for the City of Aberdeen.

John Rutherford Hill, Esq., Resident Secretary of the Pharmaceutical Society in Scotland; Secretary of the General Council of Panel Chemists (Scotland).

Sir Donald MacAlister, K.C.B., M.D., Principal of the University of Glasgow; President of the General Medical Council.

John Yule Mackay, Esq., M.D., LL.D., Principal of the University College, Dundee.

Sir James Mackenzie, M.D., F.R.C.P., Clinical Institute, St. Andrews; Consulting Physician to the London Hospital.

Sir Robert William Philip, M.D., F.R.C.P., Professor of Tuberculosis and Senior Lecturer on Clinical Medicine in the University of Edinburgh; President of the Royal College of Physicians, Edinburgh.

James Maxwell Ross, Esq., M.B., C.M., M.B.E., Medical Officer of Health and Chief School Medical Officer for the County of Dumfries.

Miss Laura Stewart-Sandeman, M.D., late Controller of Medical Services to Queen Mary's Army Auxiliary Corps, Overseas.

Sir Harold J. Stiles, K.B.E., Regius Professor of Clinical Surgery in the University of Edinburgh.

F. Tocher, Esq., D.Sc., Public Analyst for the County of Aberdeen, &c.; Honorary Secretary of the Association of Public Analysts of Scotland.

Norman Walker, Esq., M.D., General Medical Council.

George Williamson, Esq., M.D., Chairman of Aberdeen Local Medical Committee.

John A. Young, Esq., L.D.S., J.P., Vice-President of the Odonto-Chirurgical Society of Scotland; Convener of the Public Health Committee, Edinburgh Town Council.

2. National Health Insurance (Approved Societies' Work).

Thomas J. Addly, Esq., Secretary of the Scottish Professional Assistants' Society and of the St. Andrews and Edinburgh Diocesan Insurance Society; President of the Edinburgh, Leith, and District Friendly Societies' Council.

Neil Beaton, Esq., National Amalgamated Union of Shop Assistants, Warehousemen, and Clerks; ex-President of the Scottish Trade Union Congress.

Hugh Berrie, Esq., Secretary of the British Order of Ancient Free Gardeners.

David Bertram, Esq., J.P., High Chief Ranger, Ancient Order of Foresters' Friendly Society.

Miss May Dunbar, Secretary of the Scottish Women's Friendly Society.

James Gold, Esq., Secretary of the Scottish Miners' Federation Friendly Society.

John C. Hendry, Esq., J.P., Secretary of the Brechin Mill and Factory Operatives' Union; President of the Scottish Textile Workers' Federation.

Thomas McMeekin, Esq., Glasgow District Secretary of the Independent Order of Rechabites; President of the Scottish Conference of Friendly and Approved Societies.

Miss Annie McRobbie, Secretary of the North of Scotland Women's Insurance Society.

W. S. Rimmer, Esq., J.P., Inspector (Glasgow District) Prudential Assurance Company, Limited.

W. M. Shaw, Esq., Manager of the Scottish Legal Health Assurance Approved Society.

Miss Eleanor Stewart, Workers' Union.

William Thomson, Esq., Secretary of the Scottish Coöperative Friendly Society.

Peter Webster, Esq., Secretary of the Scottish Horse and Motormen's Association.

William Wood, Esq., Secretary of the Scottish Rural Workers' Friendly Society.

3. LOCAL HEALTH ADMINISTRATION AND GENERAL HEALTH QUESTIONS.

The Most Honourable the Marchioness of Aberdeen and Temair, President of the International Council of Women,

Robert Allan, Esq., Secretary of the Scottish Trade Union Congress.

Sir Henry Ballantyne, D.L., Chairman of the Royal Commission on Housing (Scotland).

Joseph F. Duncan, Esq., Secretary of the Scottish Farm Servants' Union.

J. B. Fergusson, Esq., Ayr County Council.

Andrew Grierson, Esq., Town Clerk of Edinburgh.

Joseph Johnstone, Esq., M.P., Renfrew County Council; President of the Scottish Association of Insurance Committees.

William Jones, Esq., Clerk to Glasgow Insurance Committee.

H. S. Keith, Esq., ex-Provost of Hamilton.

W. W. Kelson, Esq., Chief Sanitary Inspector, Paisley.

Mrs. Mary Burns Laird, Scottish Labour Housing Association.

Lady Leslie Mackenzie, Vice-Chairman of Edinburgh Insurance Committee; President of the Scottish National Association of Health Visitors and Women Sanitary Inspectors.

W. M. Marshall, Esq., Clerk to Lanarkshire Insurance Committee; Secretary of the Scottish Association of Insurance Committees.

Sir Thomas Munro, K.B.E., County Clerk of Lanarkshire.

Thomas G. Nasmyth, Esq., M.D., D.Sc., ex-President of the Scottish Society of Medical Officers of Health; formerly Medical Superintendent of Perth Infirmary.

Malcolm W. Scott, Secretary of the Society of Inspectors of Poor and Poor Law Officers of Scotland.

James Stewart, Esq., Glasgow Town Council (Convener of Health Committee).

Joseph Sullivan, Esq., M.B.E., Lanark County Council; Secretary of the Scottish Labour Housing Association.

James Thomson, Esq., City Engineer, Dundee; Vice-President of the Institute of Municipal and County Engineers.

W. E. Whyte, Esq., O.B.E., District Clerk, Middle Ward of Lanarkshire.

4. HIGHLANDS AND ISLANDS.

Her Grace the Duchess of Atholl, D.B.E., Member of the Highlands and Islands Medical Service Committee; President of the Perthshire Federation of District Nursing Associations.

John Birnie, Esq., J.P., ex-Provost of Inverness; Chairman of Inverness Burgh Insurance and Local War Pensions Committees.

William Durran, Esq., J.P., ex-Provost of Thurso; Chairman of the Insurance Committee for the County of Caithness and of the County Education Authority.

Rev. Wm. Fotheringham, J.P., Vice-Chairman of Zetland County Insurance and Local War Pensions Committees; Late Vice-Convener of the County and Chairman of the Mainland District Committee.

Lady Susan Gilmour, late Member of the Highlands and Islands (Medical Service) Board.

Miss Bella Jobson, Secretary of the Scottish Fish Workers' Friendly Society.

Mrs. Helen Kerr, Member of the Royal Commission on Housing (Scotland).

The Maclachlan of Maclachlan, Convener of the County of Argyll.

Miss Sybil M. Macphail, Honorary Secretary of the Ladies' Highland Association.

Dr. A. C. Miller, J.P., Chairman of the Highlands and Islands Subcommittee of the British Medical Association (Scottish Committee).

Wm. J. Munro, Esq., J.P., Clerk to Easter Ross District Committee.

Dr. Donald Murray, M.P., Late Medical Officer of Health for Lewis.

Dr. James B. Simpson, J.P., D.L., Vice-President of the Sutherland Nursing Association and Secretary to the County Local Medical Committee.

Miss Margaret M. White, Superintendent of Queen Victoria's Jubilee Institute for Nurses (Scottish Branch).

Each Consultative Council will, in terms of the Order in Council, appoint its own chairman. Mr. George A. Birse, Scottish Board of Health, 125, George-street, Edinburgh, will act as secretary to the Councils.

MEDICAL CARE IN INDUSTRY.

THE appeal of modern preventive medicine, directed, as it is, at the individual, instead of being confined as heretofore chiefly to the sanitary conditions of life, may be said to be concerned with three stages; (1) Obtaining a healthy population by supervision of births and infant life, what is known as maternal and infant welfare; (2) supervising the growing child, carried out through school medical service; and (3) maintaining in health the adult worker.

This country is probably abreast, if not ahead, of other civilised countries with regard to the first two stages, but we are behind America with regard to the last. Something we are doing through the activities known as "industrial welfare," which received, through the influence of the Ministry of Munitions, a great impetus during the war in the engineering trades; and we have to-day a powerful Welfare Supervisors' Association over 1000 strong, an Industrial Welfare Society (representative of an important group of employers), the powers of the Home Office in relation to welfare accommodation, and the work carried on by the training section of the Ministry of Labour. But the work, as readers of semi-popular journals and the daily press can testify, is steadily drifting into lay hands; the medical profession is only called in here and there to help; it is not as it ought to be the fons et origo of this important branch of preventive medicine. Presently the profession will discover that vested interests have been created which stand in the way of its true recognition and influence.

Industrial Medicine in the United States.

Advance in the United States is proceeding on different lines, and these are clearly indicated by the Public Health Bulletin, written by C. D. Selby, on the Medical and Surgical Care of Industrial Workers.[1] Industrial medicine is therein recognised as a new and interesting science, a branch of the science of industrial management on the one hand, as it is of preventive medicine on the other; "a compromise between the ideals of medicine and the necessities of business." Mr. Selby defines industrial medicine as "the theory and practice of medicine applied to the purpose of preventing and alleviating sickness and injury among industrial workers in order that they may enjoy the benefits of continuous productive employment"; and he points out its value both to employers and to workers.

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[1] Studies of the Medical and Surgical Care of Industrial Workers. By C. D. Selby. Public Health Bulletin, No. 99. 1919. United States Public Health Service, Washington.

Adoption of work on the lines of this definition gives to industrial medicine a clear line of action and a duty to fulfil, so that workers shall no longer feel themselves slaves,

> Hardened to hope, insensible to fear,
> Scarce living pulleys of a dead machine,
> Mere wheels of work and articles of trade,
> That grace the proud and noisy pomp of wealth!

The report is based upon information obtained from 155 industrial establishments as to the medical activities carried on. These establishments employed 20 consulting physicians, 68 whole-time physicians, 50 part-time, and 37 on call—i.e., 175 physicians in all—and in addition 13 dentists, while there were dispensaries at 137. These figures show how this new science in the States is under the direction of the medical profession. The factory doctor can make his value felt in every stage of industrial life:—

(i.) At industrial birth—in selecting workers suited to their work. The effect produced can only be appreciated by contrasting it with the present way of engaging workers by the method of trial and error with its attendant financial waste and instability for labour: under this method it is usual to-day to engage annually 1000 new workers to maintain a personnel of 1000, and Mr. Selby quotes one company in which the labour turnover for the year 1917 was somewhat over 400 per cent. Every engagement represents a cost of about £1. Careful selection lessens the turnover by not less than two-thirds, and the money saved is sufficient of itself to carry the cost of industrial medical service.

(ii.) Throughout industrial life—in supervising the health of the workers and the hygiene of workplaces. Medical attention to personal ailments, small at their start, lessens lost time and promotes working efficiency; this is given at the ambulance room or dispensary. Tours of inspection are required to ensure adequate sewage and waste disposal, washing and toilet facilities, ventilation, illumination, heating or cooling apparatus, blowers, exhaust draughts, floor and window cleaning, and pure drinking water. Machinery, tools, and methods of work call for medical attention to reduce to a minimum hazards to health and body. Health instruction and dental prophylaxis are essential parts of the work. Supervision of the provision, during attendance at the factory, of food suitable in quantity and quality to the work is a physiological question. Hours of labour in relation to fatigue, with facilities for rest and recuperation, can only be scientifically arranged by a medical expert in industrial hygiene. Accident prevention, effected by the safety-first movement, is essentially psychological in aspect. These are some of the medical aspects of industrial life.

(iii.) At threatened industrial demise—in restoring to productive activity those who have temporarily broken down or sustained some incapacitating injury. Organisation of first-aid treatment and ambulance squads are called for here. Out-patient work, medical and surgical, at the ambulance station makes a constant demand for service. Visitation of sick or injured workers in their homes is often needed. After-care and training of those in any way maimed can, in medical hands, often restore to usefulness those who must otherwise drift among the unemployable: a discovery which the Pensions Ministry in this country is now demonstrating for the enlightenment of industry. Mr. Selby tells of two blind men found in the plant of a large electric motor company, and of 51 crippled employees at the factory of an Ohio shoe company!

Where and How Medical Service should Start.

The report considers that: "An establishment employing anywhere from 200 to 500 people is warranted in having a dispensary; that such an establishment is justified in having either a whole-time or part-time physician; and that if he be on a part-time basis his services may advantageously be augmented by a trained female nurse or a person who has been taught to handle the routine work under his direction."

The need in larger establishments is, of course, still greater; and where from 500 to 1000 persons are employed the part-time services of a dentist for prophylactic service is considered warranted. The personnel and organisation of medical departments in establishments employing different numbers of employees is usefully discussed and set out. But attention is drawn to the need for physicians trained in industrial medicine: those who drift into the work tend to drift with it; and those who act as "finger wrappers" for the money it gives them are a reproach to the science. What is wanted is men "giving their brains and hearts to industry, striving at all times to better conditions among the working people, and to benefit industry itself." The advice given to the industrial doctor for arranging his work is, "organise, deputise, and supervise"; and training and aptitude are required for its adoption. The place of the dispensary attendant and factory nurse is set forth clearly, and the need for adequate clerical staff.

Good plans and illustrations of dispensaries and medical quarters are given in the report, which is worth consulting on this account alone; and attention is also directed to equipment, furniture, and fixtures. The practical information given in these portions of the report will be of the greatest use to those called upon to advise manufacturers wishful to embark upon this remunerative branch of industrial management.

Industrial Medical Activities.

The following summary is worth quoting verbatim to indicate the wide field of work which comes within the boundaries of industrial medicine:—

1. Treatment of injuries in dispensary, home, or hospital, by physician, attendant, or consultant, including orthopædic and reconstructive surgery when necessary.
2. Opinions as to disabilities from injury and recommendations as to compensation awards.
3. Rehabilitation of impaired workers.
4. Consultation and service, including dental, for the alleviation of ailments that become evident during hours of employment.
5. Assistance in obtaining skilled medical, dental, and nursing attentions when employees themselves are unable to procure them.
6. Visits on sick absentees to assist in treatments, to render social aid, or to instruct.
7. Regular factory inspection designed to uncover conditions that are inimical to health, and written recommendations to proper officials for their correction.
8. Studies of the effects of methods, processes, and machinery operations upon health and body functions, relating to posture, eyestrain, monotomy, speed, poisons, &c. Written recommendations to proper officials when effects are found to be harmful, and advice to employees which will enable them to minimise the harmful results of processes from which hazards cannot wholly be removed.
9. Physical examinations of applicants for employment, and written recommendations to employing officers relative to applicants' fitness for work.
10. Examinations of applicants for re-employment when the periods of absence warrant them.
11. Examinations of employees when their shop efficiency falls off, unless the reasons are evidently not physical; advice and treatment, or aid in obtaining treatment, to such as need it; and written recommendations to foremen when deemed wise.
12. Examinations of employees returning to work after sickness or injury and written recommendations to employing officers and foremen if employees are not fully restored.
13. Examinations of employees who do not feel well or do not appear well to their foremen or fellows; advice to employees when it is indicated; and written recommendations to foremen if altered working conditions are essential.
14. Examinations of workmen ceasing employment after having been exposed to special health hazards and explicit records of their conditions.
15. Frequent examinations to follow up previous findings.
16. Monthly examinations of all process workers, those who may be engaged in any work that may in any way have ill effects, and of food handlers.
17. Epidemiological service including intimate coöperation with municipal health authorities.
18. Health instruction by personal talks in the homes or factory, by lectures, posters, or pamphlets.
19. Records of data that will assist in the prevention of accidents and sickness.
20. Records of facts that will enable employers and employees to obtain equitable compensation adjustments.

21. Records of information that will show the scope and ,lue of all medical activities.
22. Studies of facts and data with the view to developing ientific knowledge and usefulness.
23. Contributions to scientific and trade publications.
24. Attendance at meetings of scientific societies.
25. Constant efforts to merit and retain the confidence the employees and the approbation of the employers.
26. Frequent conferences with those in authority.
27. Coöperation with other establishments and local, ate, and National Health authorities.
28. And finally, the admonition to organise, deputise, id supervise, remembering always that anything which important enough to do is sufficiently important to be one well.

Records and Reports.

Work of the kind here indicated cannot be done ithout organisation, and organisation is not possible ithout records and reports. Mr. Selby has taken uch trouble in setting out and discussing the value of ie records found in use, and the way in which they hould be employed to ensure efficiency and rapid work. he diversity of forms adopted makes him appeal for ome standardisation: and we cordially agree that much dvantage would accrue therefrom. In this country we nderstand that an effort in this direction is likely to be iade; and that a set of forms recommended for use iay soon be placed before manufacturers by a Government department.

No useful purpose would be served by discussing the orms reproduced in the report at length; we need only oint out that while summary reports are needed by ndustrial officials, which should be as simple and oncise as possible, they must be based on detailed ecords which incidentally are invaluable for the ursuit of scientific knowledge. Every industrial hysician should be a research worker in this new field, nd make full use of the experiments continually, even hough unintentionally, being carried out in the establishment he is attached to. The need for knowledge in ndustrial medicine is to-day great and pressing when he whole world is calling for production, production, nd again production; it is required to enable the ndustrial worker to multiply his output without detriment to his health and contentment—that detriment which is the foundation of industrial unrest and strikes, vith their inevitable drag on the wheels of social rogress.

Industrial medicine can here play an important part, ecause, as Mr. Selby justly writes, it "is not only iumane but essential to production. It is beneficial to workers and profitable to employers. It offers splendid idvantages to physicians for the development of careers n a field of rapidly growing importance, vital with pportunities for service to humanity."

ALLEGATIONS OF PROFITEERING:

A COMPLAINT FROM THE MEDICAL RESEARCH COMMITTEE.

AT a meeting of the Complaints Tribunal of the Central Committee, held on Jan. 30th at the Hotel Windsor, Victoria-street, S.W., a complaint was investigated which had been lodged by the Medical Research Committee, of 15, Buckingham-street, Strand, W.C., regarding the price of a gallon of collodion solution which was supplied to them by the British Zylonite Co., Ltd, of Hale End, London, E. The complainants alleged that they were charged £14 10*s.* 7*d.* for a gallon of the solution which they had previously purchased from the respondent company at a cost of 17*s.* 6*d.*

Dr. H. W. Dudley, who appeared in support of the complaint, mentioned that the Medical Research Committee conducted general medical research for the purpose of combating disease. He recalled the fact that in 1915 a paper was written in which the author mentioned that the British Xylonite Co. were willing to supply the solution, which was essential for some research work. That was not a customary step to take when research work was published, and the result would be that other people would apply for the solution when it was recommended by a known research worker. In September, 1915, a purchase of two gallons of the solution was made from the respondents at a cost of 17*s.* 6*d.* a gallon. Last September a gallon of the solution was ordered, and when the invoice arrived the Committee was intensely surprised to find that a charge was made of £14 10*s.* 7*d.* It refused to accept the solution, which was returned to the company, who sent them a credit note for the amount charged. The Committee extracted a small portion of the solution from the bulk, which it offered to pay for, but no charge was ever made for it. The witness gave it as his opinion that there was no reasonable explanation for a rise in price of over 1500 per cent. The Committee brought the complaint as it had in the first instance recommended the solution publicly, and it also felt that it should take strong exception to excessive charges made for materials which were used in research work.

In answer to the Chairman of the tribunal (Sir Herbert Neild, K.C., M.P.) it was stated by Dr. Dudley that the Committee was now purchasing a solution elsewhere which answered its purpose at a price of about 28*s.* a gallon.

Replying to Mr. A. Brammall, solicitor, who appeared for the company, the witness agreed that the price of the ingredients used in the solution, such as ether, methylated spirit, and nitro-cellulose, had considerably advanced in price during the last few years, while labour had also gone up considerably.

Dr. Dudley further stated that the formula for the solution was supplied to the manufacturers by the Medical Research Committee. He was not aware that before the war the solution could only be obtained from Germany, and pointed out that there was nothing very difficult about the making of the stuff. He did not know that in 1915 the respondent company was specially asked to make the solution as it could not be obtained elsewhere.

Mr. Brammall said that the charge of £14 was a mistake and was never intended. If, when the Committee complained, it had mentioned that it had been charged £14 the whole matter would have been rectified at once, and a full explanation given. The correct charge was 37*s.* 6*d.* The solution was sold as a solid or in liquid form. As a solid the price was 37*s.* 6*d.* per pound, while the same amount was charged for a gallon. The explanation was that when a gallon of the solution was evaporated there remained 1 lb. of solid matter which were called "chips." When the employee of the company to whom the order was handed saw that a gallon was ordered he thought that a gallon of the solid substance was required. He estimated a gallon as being equal to 3½ kilos or 7 lb. 12 oz., and the charge of £14 odd was made out in that way. His clients were specially requested to make the solution in 1915 when the supplies from Germany were exhausted. The company did not want to make it, and they only consented from patriotic motives, as they were told that medical people required it for the relief of suffering manhood. Literally and truly they only commenced the manufacture from philanthropic and patriotic motives. Between 1916 and 1919 the turnover of the company was four millions sterling, while in the four years the sales of the solution only amounted to £80. From a business point of view the company ought never to have touched it, and would rather not have had the business. The company had a very high reputation in the country. He also pointed out that between 1915 and 1918 no orders for the solution were received, and only "chips" were sold by the company.

Mr. T. R. Brooke, the commercial manager of the company, said that in 1915 he was told by the Medical Research Committee that Schering's collodion was no longer procurable, and, as it was required, they undertook to produce collodion, being told how it was produced. The price had increased from 17*s.* 6*d.* a pound or gallon to 37*s.* 6*d.*

The Chairman: That increase would not be complained about.

Mr. Brooke further stated that when the complaints were received there was nothing in the letters to show that £14 had been charged. It was not until they received a communication from the tribunal that they realised a mistake had been made.

Sir William Pearce, M.P., the treasurer of the Manufacturing Chemists' Association, gave evidence of the high reputation which the respondent company enjoyed.

Mr. Brammall: Do you think the company would intentionally make a charge of this sort?—My experience of the company has been a very long one, and I am certain that no one in a responsible position would do anything of the sort.

What reputation do they bear in the commercial world?—The highest possible character. They are a firm whose word may be taken. Their word is their bond.

Mr. Claud Walterer, a clerk in the employ of the company, stated that he was responsible for the mistake. He found on referring to another order that 37*s.* 6*d.* a lb. was charged, and reckoned a gallon of the "chips" as being 3½ kilos.

In answer to further questions the witness said that one other mistake had been made in dealing with the solution. Messrs. Burroughs, Wellcome and Co. ordered a quart and were charged £3 12*s.* 7*d.* No complaint was made by the buyers, but when the present case came to light an investigation of the company's books took place. The mistake made in regard to Messrs. Burroughs, Wellcome and Co. was discovered, and a refund was made. He was the clerk responsible for the error.

The Chairman, in giving the decision of the tribunal, said they were of opinion that this case was an exceedingly grave one. The explanation forwarded by the respondents on Jan. 2nd was not what one would call a complete and full statement of the facts in relation to the sale of the article. What the tribunal thought was responsible was a system which had grown up in modern times of calling upon departments to justify their existence; and the tribunal rather thought that the department, in relation to these two applications for the liquid article, might have been careless, more than careless, in regard to the method of booking them up, in order to justify themselves in relation to the general trade of the concern. The tribunal were, of course, confronted with the fact that this was a limited company, and one which was doing a very extensive business, and if the case were sent for prosecution it would rest upon the individuals constituting the company to justify themselves in order to take advantage of the section of the Act relating to limited companies. The tribunal thought that, upon the whole, it would suffice if they marked their displeasure at the way in which this transaction had been carried on by saying that, putting the most moderate construction upon it, it had been grossly careless, and such as to produce the impression in the minds of those accustomed to business, and to the precautions ordinarily taken, that it was a gross and bad case. For all that, they thought that the blame was not so much upon those who would reap the benefit of the overcharge as upon the careless way in which those in charge of the department had behaved. It was almost incredible that, two letters having been received from a public department whose custom one would have thought the respondents would have tried to retain, there was, in the interval between the making out of the invoice and the credit note, apparently no attempt to inquire more particularly into the matter, the goods being simply accepted when returned and the credit note sent, leaving the department to get the material when and from where they could. The tribunal entertained very grave doubts as to whether they were doing quite the right thing, but on the whole they thought that a censure was sufficient, and that the complaint, subject to that censure, must be dismissed.

Hospital Sunday in Bristol was observed on Jan. 25th. A strong appeal was made by the Lord Mayor, who stated that in one year 101,080 patients were treated at an expenditure of £71,000, which sum was nearly £18,000 more than the year's income. Last year the record amount of £5000 was raised, and this year it is confidently hoped that the collections will be still larger.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Public Health Council.

THE Irish Public Health Council did much importar business at its last session held on Jan. 20th to 22n On the first day the Council received a deputatio representing the National Association of Approve Societies. The deputation spoke chiefly of the necessit for providing an efficient medical service for insure persons and their dependents, and pointed out tha if a system of medical benefits or treatment fo insured persons were established in Ireland conside able funds from insurance sources would be availab towards financing such a medical service; but was essential that it should not be in any wa associated with the Poor-law Medical Service. member of the deputation, who represented th Prudential and the National Amalgamated Approve Societies, stated that the incidence of sickness amon their members was twice as great in Ireland as i England, and he attributed this to the absence i Ireland of a proper system of medical treatment. I the course of a discussion which followed, the deputatio stated that the Approved Societies would conside favourably the question of allocating towards ho pital and allied services, and for the treatment o dependents, part of any surplus funds which migh be available after the forthcoming valuation. Th deputation also agreed that there would be no obje tion to a medical service system under which insure persons would pay the medical practitioners an who would also be responsible for the treatment o persons unable to pay. Subsequently the Counc arrived at important decisions concerning the followin matters: The constitution and function of the propose central health authority in Ireland and of count health authorities; the establishment of an Iris Medical Service, which would provide medical trea ment for insured persons (and, if possible, for thei dependents) as well as for persons unable to pay; an the reorganisation and coördination of the hospita system in Ireland, with a view to providing treatmen for the classes able to pay, not only in the count institutions, but also in the voluntary hospitals in th larger cities. These questions and previous decisions o the Council were referred to a Drafting Committee, cor sisting of the chairman, Dr. E. Coey Bigger, Sir Josep A. Glynn, and Dr. R. J. Rowlette, to be embodied in th report to be made by the Council to the Chief Secretary

Belfast and the Irish Public Health Council.

A meeting of Belfast doctors—summoned by th chairman and secretary of the Local Medical Com mittee, through a notice in the public press, "to review the present position of the medical profession in rela tion to the new Public Health Council and to con sider the possibilities of State Medical Service an kindred schemes"—was held in the Medical Institut on Jan. 30th, when there was a large attendance. Th chairman of the Local (Belfast) Medical Committee Mr. R. J. Johnstone, who presided, gave an account o the present position. He explained that the Irish Publi Health Council, who was at present engaged in draftin its report, would probably make £3 a week the limit o income of those to be attended gratuitously, that ther would be a National Health Service, not whole-time applicable to dispensary doctors, but that the rea difficulty was in dealing with industrial areas. H pointed out that, in any communications with the Iris Public Health Council, the Irish Medical Committe had made it quite plain that it could not pledg the medical profession until it was first consulte as a body. A long discussion followed, which showe that there was a marked cleavage between the view of those engaged in dispensary practice and thos doing insurance work. Some of the speakers pointe out that the conditions had so altered since th report of the Viceregal Commission in 1906 that i could not be said now that the profession as a whol supported any National Health Service as applicabl me to Poor-law doctors. Undoubtedly, all were most xious to improve the condition of dispensary doctors, it was felt that a National Medical Service applicable hem alone was, in present circumstances, a misnomer. ose representing the insurance doctors pointed out it one-half of the total insured population of Ireland re in Ulster and one-fourth in Belfast, and they asked w the present dispensary doctors could attend to s vast body. Again, some of the audience were in our of the extension of medical treatment to the surance plan now in practice in Ireland, while others jected. Finally, it was unanimously agreed that the lfast medical profession could not commit themselves express any opinion until they had before them the mplete scheme promulgated by the Irish Public Health uncil, and a large committee, representative of every anch of the profession in Belfast, was appointed to conler the scheme when made public and to report back to neeting of the whole of the Belfast medical profession a future date.

Poor-law Salaries.

All over the country the Poor-law medical officers are owing much activity in pressing for increase of laries. The medical officers of the Castlecomer ion, having failed to receive the increases they ought fair, have given notice that they will refuse attend any patient, private or otherwise, until their mands are met. At a recent meeting of the medical en of the county and city of Kilkenny the following solution was passed:—

> 'That the initial salary for all dispensaries in the county lkenny be £300 per annum, with £5 annual increments until a aximum of £365 is reached, and to be retrospectively applied."

Ulster Medical Society.

A meeting of the Ulster Medical Society was held in e King Edward Memorial Hall of the Royal Victoria ospital on Jan. 29th, Mr. A. Fullerton, the President, the chair. The President introduced Major M. inclair, who gave a demonstration of his methods of eating fractures developed during the late war. The cturer fully explained the Thomas's splint, and owed how practically every injury of the extremities uld be treated by it, with various modifications to suit articular fractures. There was a crowded attendance f surgeons and general practitioners from the city and arrounding districts. At the close of the demonstraon Professor Thomas Sinclair proposed a vote of thanks the lecturer and said that he had, while acting as onsultant in France, utilised Major Sinclair's methods, nd had brought the surgeons working under him to ajor Sinclair's wards at Wimereux for instruction. He ommended the methods demonstrated that evening to he careful consideration of the practitioners in the north f Ireland, and hoped that future generations of medical tudents of the Belfast Medical School would continue o benefit by Major Sinclair's work.

Hospital Conditions in Belfast.

At the annual meeting of the Forster Green Hospital, elfast, held on Jan. 27th, it was reported that 202 ases were treated in this institution for consumption nd chest diseases during 1919. The corporation of elfast having now a sanatorium of their own for their ases, the Forster Green Hospital Committee has made new arrangement with the authorities of co. Down, o. Antrim, and co. Armagh for the admission of tuberulous patients. Unfortunately, the work of the institution was considerably interrupted in the second quarter f the past year owing to an outbreak of typhoid ever, due probably to an undiscovered "carrier," as o evidence of the origin of the epidemic could be iscovered. Financially, at the beginning of 1919 there as an adverse balance of £1942 10*s*. 11*d*., and this has ince been increased, by the extra expenditure entailed y the epidemic, to £2946 14*s*. 11*d*.

At the annual meeting of the Belfast Hospital for kin Diseases, held on Jan. 31st, it was reported that uring the past year 1035 patients have been treated. This institution was established in 1865, almost the irst hospital founded in the United Kingdom for the pecial treatment of skin diseases and allied conditions.

Feb. 2nd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Malaria and Scabies in Vienna.

THE series of diseases under which the population of this city is suffering as a near or remote after-effect of the war has been augmented by an explosive appearance of scabies, which in peace time was rather scarce here. The trouble was so serious that extraordinary measures had to be adopted to control the outbreak. The population have no soap, cannot afford to bathe owing to the lack of fuel, and even the primitive laws of cleanliness are disregarded owing to the extreme poverty and the mass-accumulation of dwellers in slums. Therefore in some of the hospitals of the external districts arrangements have been made for a rapid "scabies cure," consisting in repeated applications of Wilkinson's ointment all over the body, followed by baths with coarse soap, the treatment lasting three hours. Meanwhile the garments are disinfected by hot steam. 300 patients can be dealt with daily in each hospital in that way. Another disease, formerly rare with us, now very frequent, is malaria. Large numbers of our soldiers stationed in Italy and the Balkans acquired malaria. A recent calculation showed that in Vienna alone over 27,000 cases were reported to the military authorities. A special malaria hospital has been established with a large staff of competent qualified medical men to do the special work, and the general practitioners have been warned of the possibility of malaria as an underlying cause of obscure diseases amongst the population. Chiefly subtertian and quartan forms have been noticed, mostly in men over 50, who were used as an army of occupation.

Decrease of Air Pollution from Lack of Coal.

A peculiar feature of the practical absence of coal-supply in Vienna is the change in the pollution of air by the products of combustion. In comparison with the results obtained in the laboratories of the meteorological offices in 1914 we find a decrease of more than 65 per cent. of soluble matter, whilst the insoluble matter decreased only by 40 per cent.—a sign of the inferior quality of the fuel now available. A large percentage of the factories are standing still, households get only a fraction of their former supply, and contamination by SO_2 is practically zero. The fogs often noticed here, which used to be pea-soup coloured, now have more the appearance of sea-fog. Perhaps the marked drop of acute nasal and bronchial affections which has been noticed is due to these changes in the air pollution. The out-patient departments of our nose and throat clinics are much less frequented than formerly.

Vital Statistics.

The report of the Burgomaster of Vienna on the health of this city, dealing with the year of 1919, is a most startling paper. It deals chiefly with the loss of population by the drop of birth-rate and excess of deaths over births. Already its effects are noticeable in the schools. The number of children in the first standard of all public schools amounted in 1910 to 36,000. Last year it was 25,469. This year (1920) it is only 23,000, and it will be less than 13,000 in four years. In 1910, the total sum of children in public schools was 242,386. In 1919 it fell to 195.748, and in four years it will drop, according to the laws of statistics, to 146,000. All this is due to the drop of the birth-rate. Worst still is the outlook as a consequence of the increase of mortality. Before the war the death-rate had come down from 36·2 per 1000 in 1871 to 15·3 per 1000 in 1913. In that year 32,314 persons died in Vienna. In 1918 51,497 persons died, amongst them 6000 succumbed to the grippe epidemic. 1919 showed a little better death-rate, but still 45,000 deaths were reported. A chief reason for the high mortality is the tuberculosis of the ages of 10–15 years. Whilst the death-rate of the infants is fairly stationary, it gradually increased from 22 per 1000 to 27 per 1000 for the ages of 2–5 years, increased further from the ages of 6–10 years, but it has more than doubled amongst the children of 10–15 years. The underfed children succumb more easily to the infections, and that is the real danger to this city, for in 1918 the excess mortality was 17,000, in 1919 32,000. Lately, also, the infant death-rate has begun to rise rapidly; it is now 15 per cent. of all infants under 1 year. Therefore, all endeavours have been made to obtain help—i.e., food and fuel—for the underfed children, and the noble gifts of foodstuffs distributed by the Society of Friends have been, and still are, a marked feature of help. Furthermore, the American Public Feeding Society of Vienna secures for all underfed children one meal daily, equivalent in its food value to one litre of standard cow's milk.

The Export of Children.

As soon as it was recognised that chronic starvation menaced the real backbone of the population—our children—efforts were made to get the neutral countries to invite large numbers of children for a few months of recuperation. Switzerland took the challenge up, Holland and the Scandinavian countries followed, and even Italy, the former enemy, at once invited—very generously and on a large scale—our children. At present about 30,000 children are constantly absent from Vienna; they accumulate strength and restore their shattered or half-starved anæmic bodies in the mild climate of Northern Italy, or in breezy Holland, or in the mountains of Switzerland. They stay there mostly three months, and then others take their turn. The Socialistic party of Italy, which is organising these transports with real magnanimity, is acting in a statesman-like way, which will bear good fruit in the future. The necessity of this movement is made manifest by a few figures. The American Feeding Society undertook a general examination of all children in the Vienna schools in December, 1919, and January, 1920. Of the 186,617 persons dealt with 96,789 were classified very badly underfed (Form 3), 63,402 badly underfed (Form 2), 19,694 underfed (Form 1); only 6732 were classified as being in good condition (less than 3 per cent. of the total). This disastrous condition is a real menace in case of an epidemic breaking out. No food, no fuel, no resistance—that is our present condition.

Jan. 23rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Ministry of Social Hygiene.

THE new Ministry of M. Millerand, in the course of reorganisation, has abolished the various Under Secretariats of State which had existed under the Ministry of War during the hostilities, and in particular has freed that of the Service de Santé, which reverts to its position in 1914 of the seventeenth department of the Ministry. Henceforward it will be under the control of the Medical Inspector-General, General Toubert. It was thought that this opportunity would be taken to establish the Ministry of Public Health, the formation of which has been so long discussed. But M. Millerand has preferred to create a Ministry of Social Hygiene, a new organisation with limits still ill-defined, at the head of which has been placed M. Breton, a non-medical deputy. However, M. Breton has shown much interest in science, and during the war was head of the Department of Inventions concerned with national defence. It was from this department that the French tanks emerged. The nucleus of origin of the new Ministry is constituted by the now abolished Department of Public Assistance and Hygiene, at the Ministry of the Interior. The scope of M. Breton's work is not yet known, nor if the Corps Médical will be to some extent under his jurisdiction. His first act has been to create a permanent commission to centralise efforts against depopulation. It is now eight years since a similar commission was established by the Minister of Finance; it has met on one occasion only.

Influenza.

Influenza has made rapid progress in Paris during the last week, but, though it is becoming widespread, it is certainly less serious than last year, and fatal pulmonary complications are comparatively ra Encephalitis lethargica does not appear to be creasing, but there is much diphtheria about Paris the moment.

The Employment of Red Cross Nurses in Infant Welfa Work.

The continued and progressive decrease in the Fren birth-rate provokes the appearance of numerous p jects and reforms, of which the majority are not ne One suggestion is that bounty money should be giv for every child after the fourth—a measure whi would be a heavy charge on the national budget, a which would not necessarily be efficacious. A mo practical method seeks to develop the child welfa movement. Indeed, the bounty would go mainly poor families among which, through ignorance of t way to bring up children, the infant mortality very high. Thus the money would often be spe with no ultimate benefit to the State. Statistics sh that in the working classes the infant mortality is 60 70 per cent., and this figure has hardly varied duri the last 30 years. Among the better classes, whe children are well cared for, the mortality is betwe 6 and 10 per cent. It is only recently that infant welfa centres, clinics, and "gouttes de laits" have begun develop, inspired by Budin and his pupils, by Vari and others. The effects are only slowly and partial becoming apparent as yet. A new impulse must no be given to the movement, and the best method providing this seems to be the organisation of help their own homes to all lying-in women througho the country. Such an organisation would enable t visitor to give the mother useful advice on bringing her child, and would show her how to get official assi ance at need in the form of milk, drugs, clothing, even money. To provide the necessary personnel this colossal undertaking M. Pecker, in the Departme of Seine et Oise, has called on the Red Cross nurs who are now unemployed. Lectures have sufficed teach them the special technical knowledge; these a necessary, as most of the nurses have been accustom to deal only with war wounds. M. Pecker is so w satisfied with the results obtained that he has ask the Union des Sociétés Françaises de la Croix-Rouge adopt the same plan for the rest of France. T President, Dr. Bouloumie, has consented, and it probable that this big scheme will be carried out.

Feb. 2nd.

ANTHRAX AND SHAVING BRUSHES.

A CASE of anthrax occurred recently in Norwich in whi it appeared likely that the infection was derived from shaving brush. The victim was a railway clerk, aged who was admitted to the isolation hospital on Jan. 6th wi a swelling of the left jaw. He said that a few days previous he had cut his face while shaving, and it felt as if he h cut off a pimple. The next day he felt as if a thorn w pricking him, and the place began to swell. He had be using a new shaving brush, which was purchased Norwich. He did not come in contact with animals in work. He died on Jan. 14th and at the inquest W. L. M. Goldie, resident medical officer at the isolati hospital, stated that the patient when admitted had swelling on the left jaw, which he removed. A cultu taken from this swelling showed the presence of anthr bacilli, but serum treatment was without effect. Po mortem a large hæmorrhage was found in the stoma and the kidneys were also affected. In Dr. Goldie's opini the cause of death was anthrax, but he was una to say how it was contracted. The shaving brush, havi been unsuccessfully examined for anthrax bacilli, w handed over to Dr. Cooper Pattin, the medical officer health, and by him forwarded to the Ministry of Healt The brush was one of a consignment marked "2594. Ma in Japan." The following report was received from t Ministry of Health: "Some brushes of the same pattern that used by the deceased—viz., 2594—were examined in o laboratories, and numerous anthrax colonies were found the culture." The evidence connecting the man's death wi an infected shaving brush is thus very suggestive.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

TWO REPORTS DEALING WITH TUBERCULOSIS.

County of Derby.

IN his annual report for 1918 Dr. Sidney Barwise akes some interesting comments on the tuberculosis oblem. He expresses the view that the only means "stamping out" the disease would be the discovery some form of vaccination against the malady. In e present state of our knowledge he advocates that tention should be directed to the child. It is well nown that, in the case of communities in which tuberulosis has not previously existed, its ravages are very reat when once it is introduced. It is probable, ndeed, that in this country we survive only because he bulk of the population have acquired immunity as result of slight attacks. The child is born without mmunity, and, if exposed to infection during the first ear of life, will almost certainly succumb. But under modern conditions it is impossible to avoid the ubiquitous ubercle bacillus, which, sooner or later, will almost nevitably gain access to the system. Early exposure o a strictly limited infection, together with the uilding up of resistance during the developmental eriod by making home and school conditions approximate as closely as possible to those of a sanatorium are, n Dr. Barwise's opinion, at present the best means at ur disposal for ensuring immunity. Infantile infecion mainly occurs through the mucous membrane of he upper respiratory passages or intestinal tract, probably more through the former channel than the atter. There is reason to believe that, massive direct nfection apart, most of the cases of tuberculosis in the adult are recrudescences and extensions of these early nfections, and would have been avoided if a high degree of immunity had been established and resistance raised to the utmost in childhood. If this be true, the hunt for "early adult" cases is, to some extent, based on an illusion, as the earliest diagnosable case in an adult is already probably many years old. It is obvious from the public health point of view that, the earlier cases are diagnosed, the sooner will the individuals concerned and their families come under the influence of the tuberculosis officer and begin to lead the "sanatorium life." At the present time the Public Health Department in Derbyshire fails to get into touch with the cases while they are in an early and curable stage. As many as 70 per cent. of the cases notified die within 12 weeks of notification.

In reference to the "after-care" of the consumptive, Dr. Barwise emphasises the fact that the term "farm colony" is often misunderstood. It does not, of course, imply that the tuberculous man or woman is to be engaged on farm work in the ordinary sense. Such work is skilled and heavy in character and necessitates a seven days' week. It could not be undertaken by the average phthisical person. By a "farm colony" is meant the housing of consumptives in detached houses, where forestry, nursery gardening, horticulture, fowl-keeping, woodwork, and similar handicrafts can be carried on, the products of their labour being sold through one organisation. A better term to employ would be "craft colony." In this connexion it will be necessary to come to an agreement with the labour organisations that certain industries shall be ear-marked as suitable for the consumptive, so that there shall be a good market for the products of his subsidised labour, and that he shall not be in direct competition with healthy labour. We must consider where the process of segregating consumptives is to end, and in order to get a true perspective of the problem we must remember that the great bulk of the population of these islands is suffering or has suffered from tuberculosis. The development of "craft colonies" will, it is hoped, meet the case of those patients whose occupations are obviously unsuitable or who are without occupation. It is a fact that no individual who has suffered from established pulmonary tuberculosis ever regains his full former working capacity. The extent of the loss sustained depends, other things being equal, on the strenuousness of the occupation, and on the physical effort involved. It may be observed that occupations requiring for their successful accomplishment prolonged exertion, even if completely "outdoor," are quite unsuitable for the post-tuberculous. It would be well if this loss of working capacity, and therefore of earning power, were generally recognised. A post-tuberculous subject may be capable of efficient and of brilliant and original work, especially when such work is of a skilled and technical nature; but in heavy manual work the consumptive cannot with impunity attempt to compete with the healthy. It is only just, therefore, that tuberculous subjects should be prepared to accept a lower wage, working shorter hours than the healthy; otherwise, in the coming days of high wages and corresponding high efficiency, it will be impossible to find them employment. This point has a definite bearing on the matter of the "minimum wage," now probably a permanent feature of industry, and Dr. Barwise commends the question to the sympathetic attention of the various trade-unions and other industrial organisations. He suggests that tuberculosis officers recognised by the Ministry of Health should certify the percentage efficiency of the consumptive, and that trade-unions should honour the certificates of these officers.

County Borough of Halifax.

The difficult problem of the after-care of the sanatorium patient is considered by Dr. James T. Neech in his annual report for the year 1918. While the term "after-care" savours, perhaps, too much of a belated policy, and resembles too closely the act of locking the stable door after the steed has been stolen, it would appear that, in the present state of our knowledge, some such procedure is absolutely necessary, and must occupy an important position in the campaign against tuberculosis. But the care of those who are strongly predisposed to the disease is probably an even more important problem. If "pre-care committees" were established for the purpose of securing good housing conditions and sanitary surroundings, healthy workshops, and suitable work for these unfortunate persons with a view to preventing the development of tuberculosis, much advantage to the public health would be likely to accrue. It is obvious that we shall never stamp out the malady by attempting to cure it, and the greatest hope for the future lies in the direction of prevention. In this connexion it is possible that we have, in the past, concentrated too much attention on the part played by the tubercle bacillus without having paid sufficient regard to the effect produced by other bacteria associated therewith in the gradual extension and progress of the disease. Mixed infections probably influence the course of many of the infectious diseases. In the case of diphtheria, for example, it has been noted that when mixed infections are present the administration of antitoxin is not followed by the marked benefit that generally results from its use. It has been shown by certain observers that the tubercle bacillus grows much more luxuriantly on nutrient media impregnated with the toxins of certain of the bacteria isolated from mixed infections. It is also well known that patients who suffer from broncho-pneumonia following measles or whooping-cough are often subsequently attacked by phthisis. The primary infections in these cases probably prepare the soil for the reception of the tubercle bacillus. Again, why does the tubercle bacillus remain more or less dormant and inactive within the body at times for long periods? May not this be due to absence of the necessary symbiotic influence during the phase of inactivity?

Whatever immunity may be, it seems to differ in its nature in different diseases, because in certain cases one attack confers almost absolute immunity against further attacks of the same disease, as in small-pox, for example; while in others one attack appears to predispose to further attacks of a similar nature. It is possible that immunity in phthisis consists to a great extent of immunity against the various bacteria usually associated with mixed infections. The tuberculous process is frequently a very chronic one, having perhaps lasted for years before the patient is brought under treatment at the sanatorium, yet a certain proportion of patients after admission show early signs of improvement, and it is such cases which usually obtain the greatest benefit from sanatorium treatment. It is difficult to believe that a few days' or even a few weeks' residence in a sanatorium can produce any marked modification in the tuberculous process per se. A chronic disease, unless it is maintained and intensified by a constantly recurring cause, which is more or less removable, would not be so modified. If the purely tuberculous process were so affected it appears probable that sanatorium treatment would be more successful than it has so far proved to be. In Dr. Neech's opinion, sanatorium treatment modifies the effects of the mixed or secondary infections rather than the tuberculous process itself. If this hypothesis be true it is worthy of careful consideration in connexion with the problem of prevention. The inhabitants of great industrial centres live, so to speak, on paved surfaces. This is necessary to prevent pollution of the soil and to facilitate cleansing, but such surfaces are readily dried, and any organic matter or any infective material cast thereon is readily converted into dust which is distributed by air-currents. The house affords a receptacle for the collection and retention of the infective agent or agents. The ventilation is often defective, and that, combined with the injurious influence of overheated rooms, tends to depress vitality. Where houses are crowded together in industrial areas there is a concentration of infection and polluted environment, with the result that the disease in such districts is more prevalent and destructive of life.

In Dr. Neech's opinion it is evident that the ultimate aim of after-care must be the removal of all known consumptives from populous centres into suitable country districts. Public opinion may not yet be ripe for compulsion in this matter, but a compulsory measure in some form will doubtless be necessary to place towns, in military parlance, "out of bounds to the consumptive." The suggested colony scheme with suitable factories, workshops, schools, &c., if properly organised, will undoubtedly serve a most useful purpose. But colonies alone will not suffice. Consumptive patients, as we all know, are among the most difficult to manage and many of them would object to go into colonies. If open-air treatment is to be more effectual in the future than it has been in the past, the method must be applied as a preventive agent, and those persons who are predisposed to the disease—namely, the families of the consumptives—must be given open-air treatment before and not after they have developed the disease. It will not be sufficient therefore, to transfer the consumptive only from congested areas; those who are markedly susceptible to the disease must also be removed into open-air surroundings. With this end in view Dr. Neech recommended his committee some two years ago[1] to erect a number of bungalows with open-air bedrooms for the accommodation of consumptive families, and he commends such a scheme to careful consideration, believing that it will command the approval of many who may object to the colony.

URBAN VITAL STATISTICS.

(Week ended Jan. 31st, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had declined from 16·2 to 15·3 in the four preceding weeks, rose to 15·9 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 16·8, or 1·7 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·9 in Oxford, 5·7 in Reading, and 7·0 in Willesden, to 21·7 in Merthyr Tydfil, 22·4 in Wolverhampton, and 23·0 in Liverpool and in Oldham. The principal epidemic diseases caused 400 deaths, which corresponded to an annual rate of 1·3 per 1000, and included 109 from measles, 100 from diphtheria, 96 from whooping-cough, 65 from infantile diarrhœa, 25 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 1·8 in Leeds, 2·0 in Barrow-in-Furness and in Carlisle, 2·3 in Grimsby, and 4·4 in Barnsley; and whooping-cough of 1·4 in Leyton and in Norwich, and 1·6 in Birkenhe The 66 deaths from influenza were 19 less than the numb in the previous week, and included 15 in London, 7 Liverpool, and 6 each in Birmingham and Leeds. Th were 2550 cases of scarlet fever and 2008 of diphthe under treatment in the Metropolitan Asylums Hospit and the London Fever Hospital, against 2614 and 1 respectively at the end of the previous week. The cau of 43 deaths in the 96 towns were uncertified, of whi 13 were registered in Birmingham, 5 in Liverpool, and 3 [illegible] in Stoke-on-Trent and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with aggregate population estimated at 2,400,000 persons, t annual rate of mortality, which had been 16·6, 16·1, and 1 in the three preceding weeks, rose to 15·9 per 1000. T 340 deaths in Glasgow corresponded to [illegible] annual rate 15·9 per 1000, and included 3 from diphtheria, 2 from infant diarrhœa, and 1 each from measles and scarlet fever. T 102 deaths in Edinburgh were equal to [illegible] rate of 15·6 per 10 and included 2 each from measles and diphtheria.

Irish Towns—Jan. 24th.—The 156 deaths in Dublin cor sponded to an annual rate of 19·6, or 4·6 per 1000 above th recorded in the previous week, and included 2 from whoopin cough and 1 from diphtheria. The 141 deaths in Belfast we equal to [illegible] rate of 17·8 per 1000, and included 13 fro measles, 2 each from scarlet fever and diphtheria, and from whooping-cough.

Jan. 31st.—The 126 deaths in Dublin corresponded to annual rate of 15·8, or 3·8 per 1000 below that recorded the previous week, and included 4 from infantile diarrhœ and 1 each from enteric fever, scarlet fever, and whoopin cough. The 161 deaths in Belfast were equal to a rate 20·3 per 1000, and included 11 from measles, 6 from scarl fever, 2 from enteric fever, and 1 each from whooping-cou and infantile diarrhœa.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. Lieut. D. H. Cameron transferred to pe manent list of Surgeon Lieutenants, R.N.

ARMY MEDICAL SERVICE.

Major-Gen. W. T. Swan retires on retired pay.

Lieut.-Col. J. P. J. Murphy is placed on the half-pay li on account of ill-health.

Major A. B. Hinde, retired pay, is granted the rank Lieutenant-Colonel on ceasing to be re-employed.

Capt. R. M. Dickson relinquishes the acting rank Lieutenant-Colonel.

To be acting Lieutenant-Colonels: Temp. Capt. (actir Major) G. W. Rea, Major and Bt. Lieut.-Col. B. A. Craig.

ROYAL ARMY MEDICAL CORPS.

Capt. R. O'Kelly relinquishes the acting rank of Lie tenant-Colonel.

Temp. Capt. J. F. O'Malley to be temporary Major.

The undermentioned relinquish the acting rank of Majo Capts. S. J. A. H. Walshe, A. G. Wells, E. G. S. Cane, E. Strachan, W. J. Tobin; Temp. Capts. A. S. K. Anderso W. J. Macdonald, B. H. Woodyatt, A. L. Robinson, H. Dummere, W. C. Sharpe.

To be acting Major: Capt. M. Morris.

Capt. E. G. H. Cowen retires, receiving a gratuity.

Lieut. (temp. Capt.) H. J. Bensted to be Captain.

T. W. J. Childs to be temporary Captain.

Officers relinquishing their services:—Temp. Lieut.-Co A. C. Suffern (and retains the rank of Lieutenant-Colonel Temp. Major (acting Lieut.-Col.) W. de M. Hill is grante the rank of Lieutenant-Colonel. Temporary Majors retain ing the rank of Major: W. P. Yetts, N. Roberts. Temporar Captains granted the rank of Major: J. W. C. Gunn, W. Macdonald. Temp. Capt. J. Howells. Temporary Captain retaining the rank of Captain: G. M. Cameron, E. H. Cameron J. R. Griffith, J. Geoghegan, B. M. Collard, T. E. George S. B. Radley, A. C. Lambert, R. O. Whyte, A. E. Moore T. V. Somerville (acting Major), G. J. C. Ferrier, R. H Stoddard, G. A. Lamont, F. H. Cooke, J. F. Hoare, A. H Huycke, F. T. D. Clindening, E. F. Wills, E. J. Peill, A. R Leggatte, J. P. McVey, C. Hunter, F. D. Parbury, A. L Martyn, J. D. Gimlette, E. Forbes, W. C. Morton, E. F Buckler, A. H. Wilson, E. A. Aylward, D. K. MacDougall A. G. Alexander, J. C. Anderson, G. N. Braham, C. Loddiges A. F. Miller, R. Crawford, E. R. C. Cooke, J. Gray, R. L Haines, K. D. Atteridge, D. I. Dakeyne, H. C. Martin D. Rees, R. C. Walker, D. S. Clarke, H. W. Perkins. Temp Lieut. F. G. McGuinness (retains the rank of Lieutenant) Temp. Hon. Lieut. C. H. Evans (retains the honorary rank of Lieutenant).

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[1] THE LANCET, 1918, i., 416.

SPECIAL RESERVE OF OFFICERS.

apt. H. W. Hills relinquishes the acting rank of Major.

TERRITORIAL FORCE.

apt. F. Roberts is restored to the establishment.

ieut. P. W. G. Sargent to be Captain.

rd Southern General Hospital: Major L. M. Guilding is tored to the establishment.

st London Sanitary Company: Capt. A. G. Harrington estored to the establishment.

ROYAL AIR FORCE.

edical Branch.—Flight Lieut. (acting Squadron Leader) J. C. Hamilton to be acting Wing Commander whilst ployed as Wing Commander.

light Lieut. H. Gardiner-Hill to be acting Squadron ader whilst employed as Squadron Leader.

he undermentioned are transferred to the unemployed t: Capt. J. H. M. Sandison; Lieuts. A. G. Hewer and J. B. nlop.

ITROUS OXIDE GAS FOR MILITARY HOSPITALS.

An Army Council Instruction states that supplies of trous oxide gas for military hospitals in the Eastern Command (except the counties of Middlesex, Kent, Surrey, and ssex and Woolwich District), Irish Command, Northern mmand, Scottish Command, Southern Command (except e counties of Buckingham, Berks, Dorset, Wilts, and ants), and Western Command, will be obtained from the ndensed Gas Company, 59–63, Grosvenor-street, Manester. Supplies of nitrous oxide gas for all other military spitals will be issued from Army Medical Store, Woolwich.

DEATHS IN THE SERVICES.

Lieutenant-Colonel Denis Francis Keegan, I.M.S., whose eath at the age of 80 was recently announced, qualified in 61 with the Membership of the Royal College of urgeons of England and graduated M.B. at the University of Dublin in 1862, proceeding to the M.D. degree ree years later. In 1866 he joined the Indian Medical ervice, and acted as residency surgeon, Indore, in 1877. e saw active service in the Afghan War of 1879–80 with ord Roberts, and was present at the battle of Kandahar, btaining the medal with clasp and the bronze star. In 881 he again became residency surgeon at Indore, and was ppointed civil medical officer for Central India. It was uring this period of his life that, following Biglow of merica, he practised and advocated litholapaxy for stone n the bladder and established that method in a firm posiion. He also did much original work in plastic surgery of he face, developing the operation known [illegible] Keegan's rhinolast. The preliminary result of his work in this direction vas published in Vol. I. of THE LANCET, 1891, p. 419. This vas afterwards expanded, and with many additions was ublished in book form in 1900 under the title of "Rhinoplastic Operations, with a Description of Recent mprovements in the Indian Method." For his services to urgery the Royal College of Surgeons of England conferred upon him in 1891 an honorary Fellowship. Colonel Keegan, who passed the later years of his life in Ireland, retired from the Indian Medical Service in 1894.

THE HONOURS LIST.

The following awards to medical men for valuable services rendered in or in connexion with military hospitals, territorial hospitals, war hospitals, auxiliary and civil hospitals, command depôts, convalescent camps, or on other duties of a similar nature in the United Kingdom in connexion with the army during the war, are announced:—

K.B.E.—Mr. J. F. Colyer.

C.B.E.—Dr. G. Blacker, Dr. C. Bolton, Dr. C. H. Bond, Dr. J. W. Carr, Dr. Helen Chambers, Dr. D. Drummond, Mr. E. P. Furber, Dr. Florence B. Lambert, Dr. H. Lett, Dr. T. Lewis, Dr. T. D. Lister, Dr. C. R. C. Lyster, Mr. L. H. McGavin, Dr. H. J. Paterson, Dr. J. Sinclair, Sir T. R. H. Smith, Bart., Dr. J. Taylor, Dr. R. A. Young.

O.B.E.—Lt.-Col. W. G. P. Alpin, Dr. W. D. Anderson, Mr. T. Baker, Dr. T. W. N. Barlow, Dr. J. H. Barnard, Dr. J. S. Boden, Mr. J. G. Boon, Dr. Winifred F. Buckley, Dr. W. F. R. Burgess, Mr. A. C. Burrows, Dr. C. T. T. Comber, Dr. R. Dagger, Dr. R. G. Davidson, Dr. W. H. Dickinson, Dr. L. G. Dillon, Dr. G. C. Garratt, Dr. H. W. Gell, Mr. T. P. Gostling, Mr. E. C. Greenwood, Mr. J. Z. Hanafy, Dr. A. Hawley, Dr. K. R. Hay, Mr. W. Hern, Dr. H. T. Herring, Dr. R. J. B. Howard, Dr. R. Humphreys, Mr. W. W. James, Dr. W. H. Jewell, Dr. H. J. Johnson, Mr. R. N. Jones, Mr. J. E. Kilvert, Mr. P. C. W. Laws, Mr. K. A. Lees, Dr. R. M. Hutchinson-Low, Dr. H. M. McCrea, Dr. N. McDonald, Dr. W. F. McEwen, Dr. Ethel M. Magill, Dr. C. J. L. Mansel, Maj. A. E. Morison, Dr. E. Moss, Dr. R. A. Murray, Mr. G. E. Newby, Mr. W. J. C. Nourse, Mr. J. I. Palmer, Mr. J. L. Payne, Dr. G. J. Peacocke, Dr. J. P. Philip, Dr. E. T. Pinhey, Dr. J. F. Porter, Mr. T. G. Prosser, Dr. J. A. Reed, Dr. P. J. Rendall, Dr. R. A. Rowlands, Dr. H. Sainsbury, Mr. O. B. Shelswell, Dr. Amy Sheppard, Dr. G. K. Smiley, Mr. J. A. Southern, Mr. G. S. Stansfield, Dr. R. de S. Stawell, Dr. H. W. M. Strover, Dr. E. G. Thomas, Dr. R. Turner, Dr. W. Turner, M.V.O., Mr. J. O. D. Wade, Mr. A. H. Warde, Dr. J. A. Wilson.

M.B.E.—Dr. T. C. Askin, Mr. R. T. Bailey, Dr. F. W. H. Bigley, Dr. W. T. Blackledge, Maj. J. F. Blood, Dr. E. M. Brockbank, Mr. T. W. Chaff, Dr. P. M. Chapman, Dr. A. C. Clarke, Dr. J. Craig, Dr. J. B. Cruickshank, Maj. G. H. Darwin, Mr. J. H. Fardon, Dr. C. H. Ferguson, Lieut.-Col. M. Gamble, Dr. C. F. Hadfield, Dr. J. Stirling-Hamilton, Capt. E. W. Hedley, Dr. G. E. Helme, Dr. J. B. Hughes, Mr. G. A. Hutchinson, Dr. Catherine M. Ironside, Dr. T. H. Jamieson, Dr. W. J. Lindsay, Dr. W. McClelland, Mr. G. MacGill, Dr. Mary C. Mackie, Mr. J. C. MacWatters, Dr. F. W. Melvin, Dr. W. S. Moore, Dr. J. G. Moyles, Mr. M. M. Murphy, Dr. H. T. Nixon, Dr. J. Noble, Dr. S. J. Palmer, Dr. W. H. Prentice, Mr. J. Rust, Dr. J. W. Stenhouse, Dr. J. S. B. Stopford, Prof. W. T. Thomas, Dr. T. H. Sanderson-Wells, Dr. H. B. Woodcock, Mr. F. W. Wilson, Dr. R. Wyse.

The Military Cross has been awarded to Temp. Capt. W. J. Maloney, R.A.M.C., for gallant and distinguished services in the field.

The following awards in recognition of valuable services rendered whilst prisoners of war or interned are announced:—

O.B.E.—Capt. T. W. Leighton, R.A.M.C. (T.F.); Maj. W. Mitchell, R.A.M.C.; Maj. F. S. Park, C.A.M.C.

M.B.E.—Asst. Surgs. E. B. Holt and H. A. T. Wells, I.M.D.

BROUGHT TO NOTICE.

The following have been brought to notice for gallant and distinguished services rendered in the field:—

Temp. Capt. I. C. Maclean, D.S.O., M.C., R.A.M.C. (died); Maj. F. S. Park, C.A.M.C.

Obituary.

HENRY LEWIS CLARE, M.D., B.CH. DUB., D.P.H. R.C.P.S. IREL.,

SURGEON-GENERAL AND CHIEF MEDICAL OFFICER OF HEALTH AND MEMBER OF THE LEGISLATIVE COUNCIL, TRINIDAD AND TOBAGO.

Dr. Henry Lewis Clare, who died on Jan. 24th at Bournemouth a few days before his sixty-fourth birthday, was a well-known officer of the West Indies Medical Service, and although he did not always see eye to eye with his authorities, he did useful work in the interests of public health.

Born in Dublin on Jan. 29th, 1858, he was educated at the Rathmines School and at Trinity College, graduating M.B., B.Ch. in the University in 1880. In the following year he was appointed junior resident medical officer of the public hospital at Kingston, Jamaica, and in the subsequent 14 years held appointments as medical officer for various districts in the Jamaica Medical Service. In 1896, the year in which he was President of the Jamaica branch of the British Medical Association, he was appointed district medical officer for Kingston and member of the Central Board of Health. After holding an appointment as acting superintendent medical officer for a year, in 1907 he became surgeon-general and chief medical officer of health for Trinidad and Tobago. While in this office he was involved in a conflict with the authorities. In 1910 a patient was admitted into the Colonial Hospital at Port of Spain and died within two days from bubonic plague. It was then alleged that the surgeon-general, who was also consulting surgeon to the hospital, though informed of the character of the case, had neglected to visit the patient, and did not declare the case to be one of plague until three days after death had occurred. A Commission was appointed by the Governor of the colony to inquire into this matter and other circumstances connected with the conduct of Dr. Clare's medical administration of the colony. This Commission sat for 27 days, and produced a report of 860 pages dealing in a most exhaustive manner with the whole question, but without finding that any of the serious allegations against the medical administration and personal character of Dr. Clare had been borne out. Certain failings in administrative capacity were, indeed, admitted by the chairman of the Commission, Mr. Justice A. D. Russell, but he found no proof of lack of honour or integrity, and congratulated the surgeon-general on having come so well out of an ordeal which wore many of the features of a persecution.

Dr. Clare acted as delegate from Trinidad to the Central Quarantine Authority at Barbadoes from 1908 to 1912, and was President of the first West Indies Inter-Colonial Conference on Tuberculosis, which was held at Port of Spain in March, 1913.

Correspondence.

"Audi alteram partem."

ŒDEMA AS A SYMPTOM IN SO-CALLED FOOD-DEFICIENCY DISEASES.

To the Editor of THE LANCET.

SIR,—Your issue of Jan. 31st contains an article with this title, from which it would appear that the author, Dr. A. Douglas Bigland, is not aware of the prevalence of "hunger œdema" in English Poor-law and insane institutions during the hard times in the winter of 1917–18. There must have been many cases and many deaths. These are firmly associated in my mind with deficiency of fat-soluble A; the calories were sufficient to sustain life, but the food had to be presented in the form of well-cooked soups, stews, or puddings, while fresh milk was in great deficiency. The cases were relieved here when the spring vegetables came into season, and definitely abolished later in the year by the fortunate purchase of 50 gallons of cod-liver oil, then almost unprocurable, and later on by the release of a special cheese ration by the Central Food Control. The symptoms bore no resemblance to those of pellagra, ot which I have seen two cases, or of scurvy, which latter disease used to be quite common in English asylums 25 years ago, before the necessity for a free supply of uncooked green vegetables was recognised, even although water-soluble C was then unknown. Beri-beri signs never occurred, but bread still contains a fair amount of water-soluble B.

Dr. Bigland hardly lays stress on either the mental dullness, which was an early sign, or the constant occurrence of the "scarlatinal or morbiliform rash." Really the spots are exactly like those of enteric on their first day, but appear mainly on the shins and dorsum of feet instead of the abdomen. The extreme loss of fat and moderate œdema with muscular asthenia and subnormal temperature were also typical. Naturally chronic dysenterics suffered badly, but not so much as the hard-working patients—e.g., stokers. Post mortem, the fat loculi were everywhere full of mucin-laden serum, and "œdema of the auriculo-ventricular junction" was universal. The adrenals were large and looked healthy, but a few cases of hæmorrhagic adrenalitis appeared.

At that time laboratory work was impossible owing to the absence of staff on war service, but the train of events seems fairly clear. Whatever the chemistry of vitamines and their interaction with the hormones may be, the adrenalin outflow was a protective sympathetico-tonus calculated to produce hyperglycæmia. Owing to starvation the effort was futile, consequently the depressive emotion as a muscle-sensory motor reaction scarcely occurred, and melancholics became less depressed. That cortical lipolysis was acute is evidenced by the mental dullness, and especially by the persistent residual dementia in many cases after physical recovery. There is considerable evidence that undue calcium katabolism and insufficient calcium intake are both susceptible to the influence of fat-soluble A, but it is not necessary to deal with these points at present.

I am, Sir, yours faithfully,

Cheddleton, Feb. 2nd, 1920. W. F. MENZIES.

THE INFECTIVITY OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I should like to reply to two points raised by Dr. H. Batty Shaw in his lecture on Pulmonary and Other Forms of Tuberculosis in your issue of Jan. 24th.

The failure of segregation.—It is true that sanatoriums and dispensaries are disappointing in the treatment of individual patients, but when Dr. Shaw goes on to infer that segregation and treatment of tuberculosis as an infective disease has failed, I cannot see any grounds for the inference. Tuberculosis is, indeed, notifiable, but no serious attempt has yet been made to treat it as an infective disease and isolate infective cases. Some may stay for a perio hospitals or sanatoriums, but for a short period not long enough for useful isolation; while, on other hand, general and special hospitals, Brompton itself, as Dr. Shaw points out, refuse and more to accommodate advanced and dange patients, who are therefore compelled to live " their own," and with disastrous results to their (at least in many instances that have come to notice). The meat of a cow with tuberculosis is allowed to be sold, but the milk is still sold; nothing whatever is done to deal with the far dangerous infective humans. It is almost as dangerous plague having attacked a certain commu the public health authorities of that community off free medicines to diseased patients and forbade a planes to fly over the infected area, but took no o precautions, and then complained that all measur segregation had failed.

The rôle of secondary infections.—It is also quite that those subject to bronchial and other respira catarrhs are more likely to develop tuberculosis others; but it does not follow that the second infecting organism is itself the dangerous factor. It just as well be that the secondary infection lowers local resistance to the tubercle bacillus and allows become more active. The latter hypothesis is likelier, perhaps, for the disposition to catarrhs usually lifelong, while the development of clin tuberculosis occurs later.

We await some further explanation of the m cases of clinical tuberculosis in which tubercle ba are not found in the sputum. There are doubtless so purely staphylococcal or pneumococcal infections wh simulate tuberculosis and account for a few, but many, of the cases in this group. Possibly so hitherto unrecognised form of the tubercle bacillus a spore stage will explain matters; certainly, elucidation of this problem is most important.

I am, Sir, yours faithfully,

Paignton, Jan. 27th, 1920. E. WARD

To the Editor of THE LANCET.

SIR,—In Dr. Batty Shaw's address in THE LANC of Jan. 24th tuberculosis is presented as a non-infectio disease, although the lectuer cites the fact that its perio city curve resembles that of the acute infectious diseas The difference appears to be merely one of chronic and not of infectivity. Infection by the tubercle bacill is universal amongst man. It is no support of t internal reinfection theory to say that in any particul individual a healed tuberculous lesion in a part may followed, after a lapse of months or years, by an acti lesion in another. If external reinfection takes pla in some cases—a concession Dr. Batty Shaw makes why should it not do so in all? Infections do n spread in a multiplicity of ways, and the better unde stood pathological processes become the simpler th are found to be. If the contentions in the address a correct, it is a needless and an alarmist policy advocate sputum flasks, separate bedrooms, separa eating utensils in cases of consumption. The reserv tions and small inconsistencies that crop up in th course of the address do not add to the strength of th argument.

Dr. Shaw deplores the undoubtedly poor results sanatorium treatment and the obvious failure of th antituberculosis measures in vogue, but he does n point out the cause of the failure. I wonder how man "homes for the dying" admit advanced tuberculo (consumptive) cases? As for the infirmaries, patien enter and leave these institutions as external circum stances dictate. The ultimate refuge of the consumptiv during his last months is, in the vast majority instances, his own, usually overcrowded, home. A fe years pass by, the family scatters, another membe develops the disease, but the direct connexion betwee the first case and the second is lost, and with it valuable detail. No observable source of massiv infection being found, the patient is supposed to hav inherited the disease in early childhood or even before he "inhuman and unsocial" procedure of segrega- in colonies was thoroughly carried out, the results d improve and tubercle in the span of a generation me as uncommon as leprosy. Surely it is logical olate those unfortunate members in our midst who become a source of danger to their neighbours. It ne in the acute infectious diseases, why not in the nic? Incidentally some figures which Dr. Shaw s support my contention—pessimistic though it be at once tubercle bacilli have appeared in the um the stage of cure is past. We have got into the t of thinking in days and weeks when dealing with ase so that the lapse of years makes us lose the between cause and effect. Rather let us be cruel e kind, than sit resignedly with folded arms and ly murmur "Kismet."

I am, Sir, yours faithfully,
OSCAR M. HOLDEN, M.D.
ansea, Jan. 28th, 1920.

HE INCREASE OF CRIMINAL ABORTION.

To the Editor of THE LANCET.

R,—Your leading article on criminal abortion raises e interesting and important points. Why should curing abortion for other than medical reasons be sidered a crime so grave that, in the opinion of a l-known judge of the High Court, the "professional rtionist," such as Gardner, ought to be hanged n he has the misfortune to lose a patient? I ress it thus because, as we all know, every abortion- iger, "professional" or occasional, does his best, what that may be worth, to keep his patient alive well: the last thing he desires is the illness or th of the woman concerned. So distinguished an hority as the late Dr. Mercier wrote: "The curing of abortion with the consent of the nan wrongs no one. ...... I can discover no nd reason in ethics for the great severity h which the procuring of abortion is punished law."[1] Is the reason adduced by the learned ge the main reason for this severity? Are not some the "other reasons" a good deal more important? he repeated induction of abortion is a heinous crime ause for our own safety as a nation we need "plenty children" "to meet our enemies in the gates" then at about the deliberate and intentional prevention of ception? If the "professional abortionist" ought be hanged, how about the Doctor of Science who pub- es details of procedures calculated to prevent con- tion? The influence of the latter in lowering the th-rate is probably a hundred times greater than that Gardner and Co., who at least practise in the semi- curity of back streets, while the publications referred are sold by thousands, probably tens of thousands, l certainly not by medical publishers to the profession ne.

suggest, Sir, that the main reason, and the most ensible, for severely punishing "criminal" abortion to protect the girl or woman from unfair suasion, ssure, or force on the part of lover, husband, or uaintances. If "criminal" abortion were not erely punishable every girl or woman who had the sfortune to become pregnant contrary to her own, r lover, or husband's desire, would be liable to s very undesirable form of pressure, and I fear re are a good many such persons who would t hesitate to exercise it. That this operation y possibly cause the death of the patient is in itself insufficient reason for banning it, because death y ensue from any "operation of election," if only m the anæsthetic; but the chances are that the risks artificial abortion would be entirely concealed from e patient.

In his list of offences against the racial principle . Mercier placed "criminal" abortion between fanticide and prevention of conception. "Infanticide, ocuring abortion, and preventing conception are anifestly three degrees of the same crime, and I ink manifestly diminish in turpitude from the first- entioned to the last."[2]

If purposive infanticide is never punished by death, why should accidental woman-slaughter be so severely punished, unless for the protection of woman against force and fraud on the part of her relatives, acquaintances, and advisers.

I am, Sir, yours faithfully,
BERESFORD KINGSFORD.
Upper George-street, W., Feb. 1st, 1920.

VACCINE TREATMENT OF ACUTE ORCHITIS AND CATARRHAL JAUNDICE.

To the Editor of THE LANCET.

SIR,—The following are personal experiences. During the last few years I have been specially unfortunate in my bacterial encounters, and it is in the hope that these may be of benefit to others that I venture to place them on record.

Nine years ago a very severe attack of nasal catarrh was followed by sinusitis. I sought relief in a warmer climate, but was attacked by left hemiplegia (fortunately not complete) in Venice, came straight home, and went to bed for six weeks. In the course of this time an attack of phlebitis developed in the left saphena, and in view of this I had no doubt that the hemiplegia was also of bacterial origin. With this idea I prepared an autogenous vaccine of *M. catarrhalis*, which was easily obtained from the nose, and this not only cured the general condition, but also the sinusitis and nasal catarrh. The hemiplegia disappeared completely.

Two and a half years ago, after five days of a severe attack of erysipelas, I became unconscious, and remained so for four days, when I regained consciousness with complete right hemiplegia and aphasia, being quite unable to articulate. Thanks to the kind care of my good friends, Dr. Percy Kidd and Dr. Porter Smith, I again made a rapid and complete recovery.

At Midsummer, 1918, a very severe attack of hæmaturia, lasting a week and followed by another on Dec. 1st, called for an investigation of the bladder, and was found to be due to a papilloma, which was dealt with by high-frequency current. The first operation gave rise to a good deal of cystitis, which I regarded as a natural consequence. On the second occasion pain began to be felt in the left inguinal canal 36 hours after the operation, and this passed down the cord, accompanied by swelling, first of the epididymis, and then of the testicle, which became greatly enlarged, but not, so far as I can judge, so tender as in gonorrhœal orchitis. After a day or two I noticed that the last few drops of urine were turbid, and taking advantage of this, I made a culture, which contained two organisms, a staphylococcus and a short stout bacillus. Without waiting to differentiate between the two, I made an autogenous vaccine, containing, as nearly as might be, 50 millions of each, as an initial dose. The general reaction after the second and following doses was very marked, a feeling of nausea, faintness, and general illness, lasting about three hours, but the effect upon the local conditions was most striking, since only six or seven doses in all were needed to effect a cure, though there is still a little fluid in the tunica vaginalis.

Two months ago, during a mild attack of nasal catarrh, I had a slight rigor, and a temperature of 99·6°F. on the first and second evenings. I continued to get about until the fifth day, when I noticed that the urine, though dark, remained clear on cooling. I then tested for bile, and, by barium chloride and chloroform, obtained enough pigment to give the reaction. Next day the conjunctivæ became yellow, and on the tenth day the fæces were quite white, and the general surface strongly pigmented. In view of the febrile attack I was led to suspect a bacterial infection, and having had catarrh at the onset, and having by me a dose of 1000 millions of my old autogenous vaccine, I injected it. The general reaction was much as above narrated. The nasal mucus yielded a pure and abundant growth of *M. catarrhalis*, and, to make a long story short, the bile returned to the fæces within four days, though it was five weeks before the urine and conjunctivæ became normal. I had in all six doses of the new vaccine. I should perhaps add that on neither occasion was any other treatment used after the vaccine was begun, so that in both it may fairly claim the credit.

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[1] Crime and Criminals, p. 197.

[2] Ibid., p. 197.

In view of the attacks which have lately been made upon vaccine methods of treatment the above events are not without their lessons. Personally, it is my fixed rule never to prepare a vaccine for a patient without a reasonable chance of obtaining the peccant organism. For the same reason I always steadily decline to attempt the preparation of a blood vaccine except at the bedside. The sources of error are too many.

I am, Sir, yours faithfully,

E. C. BOUSFIELD, D.P.H. Camb. and Lond.,
Director, Camberwell Research Laboratories; Bacteriologist, Camberwell and Hackney.

ALIMENTARY TOXÆMIA.

To the Editor of THE LANCET.

SIR,—We may well give keen attention to the views suggested by Dr. R. Chetham-Strode and Dr. J. D. Benjafield in their recent communication (THE LANCET, Jan. 10th), for here we obtain a definite line of action based on a really scientific hypothesis, and controlled by tests which, though now somewhat haphazard, are of their nature not outside the possibility of proper control. Granted that the establishment of a lactic-acid fermentation within the large intestine is an essential foundation of health, it is clear that the directions as to diet, massage, autogenous vaccines, and the use of "sour-milk"—to which may well be added the wearing of a suitable abdominal support—offer what may well be a very fruitful field for therapeutic investigation; much must depend on the skill with which these things are made use of in combination or alone. One may hope, therefore, that the authors of the interesting communication in question will find time to collate the facts on which their lactic-fermentation view of health is founded. At the same time the busy practitioner will undoubtedly welcome some form of chemical test, readily applicable to the stools, that will enable him to know when this fermentation has become established, in place of the bacteriological index suggested.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 31st, 1920. E. L. ASH, M.D.

LOCAL EFFECT OF QUININE INJECTION.

To the Editor of THE LANCET.

SIR,—An annotation on the Local Effect of Quinine Injection in THE LANCET of Jan. 31st concludes with the words, "the severe complications which may attend this practice would seem to contra-indicate it save under exceptional conditions."

I venture to think that the opinion thus expressed is misleading. In the actual treatment of malaria in Macedonia during three summers it was found that these severe complications were very exceptional, whereas the conditions necessitating intramuscular injection were, unfortunately, very common.

As one who saw some of Colonel L. S. Dudgeon's experimental results in the fresh state, I fully agree with his statements of the destructive effects of these injections. It is certain that every injection must cause a patch of necrosis in the muscle. I am equally certain, however, that the patient is none the worse. A few days' stiffness and slight local pain comprise all the ill-effects resulting from the injections, symptoms so slight that they should not be allowed to count against the therapeutic gain obtained by the extremely rapid absorption of the drug. This opinion is based on the observation of several hundred cases and on the personal experience of receiving a full course of injections myself, from which I have never felt the slightest ill-effects. Septic complications, and injuries to vessels and nerves, were in almost every case attributable to faulty technique, and were so rare in practice as to be almost negligible.

The consensus of clinical opinion in the Salonica Forces was certainly in favour of the free use of intramuscular injection as a means of obtaining a rapid control of the severe infections which were so common. I believe that for every case of permanent disabi from muscle or nerve injury produced by these in tions several lives were saved, and in consequen think that any statement which would tend to rest the use of this method of treatment in the sev forms of malaria is to be regretted.

I am, Sir, yours faithfully,

Welbeck-street, W., Feb. 3rd, 1920. HAROLD WILTSHIR

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—At the moment I have no wish to enter in discussion on what, in some instances, cases of r scarlet fever may or may not actually prove to be, there is a statement in Dr. Charles R. Box's lette your issue of Jan. 31st which puzzles me. In refer to mild scarlet fever cases he says: "One may sa once that none of the milder cases alluded to German measles; of this I am certain." For many years the diagnosis between scarlet fever rubella has interested me more than any other diagn For instance, I had learned that in some cases it impossible to differentiate, and I had also learned t the rash of rubella, from its start, occasionally imita the rash of scarlet fever. Dr. Box is certain th series of cases of supposed mild scarlet fever were n of them rubella, and he would confer a very gr benefit were he to indicate the points which shoul observed to make the differential diagnosis certain.

I am, Sir, yours faithfully,

FREDERIC THOMSON,
Medical Superintende
North-Eastern Hospital, Tottenham, N., Jan. 31st, 1920.

THE DEATH-ROLL OF STREET ACCIDENT

To the Editor of THE LANCET.

SIR,—We are so accustomed to reading of fatal st accidents, caused by taxi-cabs, motor, electric steam vehicles, and bicycles, and the verdict of coroner's court, "Accidental death—no blame attac to the driver," that in these days, when human lif held so cheaply, it is only when a relative or frien killed that we seriously consider what can be don prevent these accidents.

On putting together the statistics of the last (1 report of the Registrar-General (for the year 1917) find that in 12 months 1617 persons were killed England and Wales by these accidents; and m more would be seriously injured. Yet no one attem to commit suicide by placing him- or her-self in fron a taxi-cab or motor vehicle. In addition to accide through thoughtlessness and impatience, we h occasional risks through the drivers suffering f petit mal, epilepsy, syncopal attacks, and early gen paralysis. When the driver is clearly to blame h frequently dismissed with a short rebuke, as in typical instance in the north, where a lady was kil by a motor lorry on a bright afternoon. The dri admitted he was looking behind the lorry at the ti but the case was dismissed, with a rebuke from coroner, in terms less severe than most of us wo have used if our dog had been killed.

Some accidents are unavoidable, but much might done to prevent a large number of them; and m will agree with me that the time has arrived w Government should be again urged to enforce furt regulations with respect to motor traffic.

I am, Sir, yours faithfully,

Jan. 22nd, 1920. R. T. W

THE LATE MR. J. C. M'LACHLAN.—John Char M'Lachlan, L.R.C.P. & S. Edin., died on Jan. 18th, the age of 66. He received his medical education at University of Edinburgh and School of Medicine at Royal Colleges, qualifying in 1878. For more than 40 ye he was a well-known practitioner at Shelf, Halifax, a actively associated himself with the public life of district. He was medical officer for Shelf and part of Northowram union, a certifying factory surgeon, and member of the old school board. He was an antiquar and had an extensive knowledge of European cathedrals.

Medical News.

OYAL COLLEGE OF PHYSICIANS OF LONDON.—An inary Comitia was held on Jan. 29th, Sir Norman Moore, President, occupying the chair. The following were itted as Members: Dr. J. Beatty, Dr. T. I. Bennett, Dr. . Clarke, Dr. E. L. Collis, Dr. N. H. Fairley, Dr. Dorothy Hare, Dr. G. Marshall, Dr. S. G. Ross, Dr. K. Simpson, R. H. Simpson, Dr. A. T. Todd, Dr. Sibyl I. Welsh. ences to practise physic were granted to 65 candidates had conformed to the by-laws and regulations and sed the required examinations. In conjunction with the val College of Surgeons of England diplomas in public lth were granted to 15 candidates. The following were ted councillors: Dr. W. H. R. Rivers, Dr. S. Monckton eman, Dr. T. H. Arnold Chaplin, and Dr. John Fawcett, place of Sir Henry Davey, Dr. W. Essex Wynter, Dr. nes Taylor, and Dr. Herbert Spencer, who retire by ation. A report was received from the Committee pointed to advise on the disposal of the donation of £500, de by Mr. Mitchell through Sir Edward Malins, for the ancement of our knowledge of tuberculosis, and it was olved that the interest of the sum of £500 should be oted to providing for a triennial lecture on tuberculosis be given by a registered medical practitioner appointed by President and Censors.

ROYAL COLLEGES OF PHYSICIANS OF LONDON SURGEONS OF ENGLAND.—At the Final Examination, d from Jan. 13th to 27th, the following candidates were proved in the undermentioned subjects, but are not gible for diplomas:—

edicine.—S. E. Amos, St. Thomas's; Dorothy Bellows, Royal Free; Beryl Bolton, St. Mary's; J. P. Bonfield, Queen's Univ., Kingston, and London; T. A. Brown, Oxford and St. Thomas's; F. Christian, Univ. Coll.; Sarah Annie Cooper, Charing Cross; R. D. Cowan, Toronto and Middlesex; J. J. da Gama Machado, St. Bart.'s; S. N. Deboo, Bombay and London; K. H. Docuss, St. Bart.'s; E. E. Elt, Charing Cross; R. S. Fawssett, St. Bart.'s; J. O'F. Fletcher, St. Mary's; Agnes May Frew, Birmingham; E. E. D. Gray, Guy's; S. Grossman, Edinburgh; T. B. Hodgson, Oxford and St. Bart.'s; W. V. Hughes, St. Mary's; J. Kendall, Guy's; A. M. Kirdany, St. Bart.'s; G. V. C. Last, Liverpool; W. A. Low, St. Thomas's; E. Lowe, Birmingham; G. J. W. McMichael, Birmingham and Univ. Coll.; Cecily Margaret Evadne Maude, Royal Free; B. Molloy, Cork and Birmingham; L. Moss, Guy's; W. A. O'Connor, Oxford and Birmingham; F. R. Oliver, Cambridge and St. Bart.'s; H. C. Powell, Charing Cross; R. V. Powell, King's Coll.; R. F. Price, McGill; C. M. Probert, Guy's; J. Proujansky, London; I. M. Rattray, Cambridge and St. George's; T. Reed, Guy's; Esther Rickards, St. Mary's; E. L. Robert, Middlesex; Isabella McDougall Robertson, St. George's; E. T. Saravanamuttu, Madras and Edinburgh; Mary Selena Share-Jones, Liverpool and Manchester; J. A. P. Shaw, Cambridge and St. Thomas's; E. A. Sparks, St. Thomas's; F. D. Spencer, and G. C. Thornton, Birmingham; R. A. Walker, St. Thomas's; Lucy Wills, Royal Free; F. W. Zaglama, Manchester; and P. R. Zinn, New York.

Midwifery.—H. Amin, Guy's; Ivy Constance Beach, St. Mary's; A. Bearblock, Univ. Coll.; W. Beaumont, London; Dorothy Bellows, Royal Free; L. M. Billingham, St. Bart.'s; F. Blake, St. George's; C. H. Bracewell, St. Bart.'s; Hylda Catherine Briscoe and Mary Burfield, St. Mary's; C. L. C. Burns, St. Thomas's; A. Y. Cantin, London; G. W. Cheater, Charing Cross; D. Crawford, Cambridge and St. Bart.'s; F. W. Crook, Guy's; H. A. Crowther, Cambridge and Guy's; E. C. Curwen, Cambridge and St. Thomas's; K. V. Deakin, Manchester; M. A. Distaso, Cardiff and Bristol; A. H. G. Down, Univ. Coll.; T. A. J. Duff, Toronto; R. T. Edwards, London; E. E. Elt, Charing Cross; M. J. Erdberg, Durham; H. J. Ewart, Univ. Coll.; R. W. Fairfax, Charing Cross; R. A. Fanous, Manchester; R. K. Foulkes, King's Coll.; M. Garfield, Univ. Coll.; I. Griffiths, Liverpool; A. B. Hacking, Middlesex; Hilda Treloggen Haggett, Royal Free; C. K. J. Hamilton, Oxford and St. Thomas's; T. Handel, King's Coll.; Eleanor Harse, Royal Free; H. J. H. Hendley, Cambridge and St. Bart.'s; O. P. Hodge, Louisville; Florence Janetta Humphreys, Westminster; A. Y. Ibrahim, St. Thomas's; M. Jayakar, Univ. Coll.; Anna Keilin, Charing Cross; A. M. Khaleel, Middlesex; A. M. Kirdany, Cairo and St. Bart.'s; J. N. Laing, Manchester; F. Lawrence, London; J. H. Le Brasseur, Cambridge and St. Bart.'s; R. T. Lee, Sheffield; R. Lee-Michell, Middlesex; A. Leigh, Manchester; G. M. Lewis, Univ. Coll.; E. Lowe, Birmingham; Kathleen Maria Boyce McArthur, St. Mary's; R. A. McCabe, Middlesex; N. Makar, St. Thomas's; P. H. Marsden, Liverpool; B. Molloy, Cork and Birmingham; E. R. D. Nagel, St. Thomas's; C. W. Narbeth, St. Bart.'s; H. A. Nathan, Charing Cross; E. L. J. Nicole, Westminster; T. L. Ormerod, Oxford and St. Bart.'s; C. L. Pasricha, Cambridge and St. Bart.'s; R. M. Patterson, Guy's; E. F. Peck, Liverpool and St. Bart.'s; H. J. Phillips and J. Posner, Dublin; J. L. Potts, Cambridge and St. Bart's; H. C. Powell, Charing Cross; C. S. C. Prance, St. Bart.'s; Mary Colegrave Prideaux, St. Mary's; W. Remington, Guy's; M. H. Renall, St. Bart.'s; E. L. Robert, Middlesex; O. W. Robert's, King's Coll.; M. Rose, Guy's; E. Savage, St. Bart.'s; Katherine Jane Shaw, Royal Free; R. G. V. Shaw, Sydney and London; E. H. Strange, St. Bart.'s; H. J. V. Sutton, Middlesex; J. G. Tait, Edinburgh; J. McW. Taylor, Western Univ., Ont.; H. E. Thomas, Univ. Coll.; T. W. Turner, Guy's; J. van' Roojen, Amsterdam; A. R. Walker, Cambridge and St. Thomas's; R. P. Wanless, Durham Helena Jane Webster, Westminster; D. C. Williams, London; Lucy Wills, Royal Free; E. F. Wilson, Guy's; H. N. Witham, St. Thomas's; and C. F. Young, London.

Surgery.—W. G. Barnard, London; D. Crawford, Cambridge and St. Bart.'s; D. G. Garnett, Cambridge and St. Thomas's; R. R. Halsall, Manchester; F. Heber, London; W. V. Hughes, St. Mary's; D. Hunter, London; F. V. Jacques, Bristol and London; F. C. Jones and A. W. Kirkham, Manchester; P. T. Liang, Cambridge and St. Thomas's; H. Mackenzie, Queen's Univ., Kingston, and London; Esther Rickards, St. Mary's; C. Suffern, Cambridge and St. Thomas's; J. McW. Taylor, Western Univ., Ont.; M. Tree, London; and J. van Roojen, Amsterdam.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—G. R. Aspinwall (Sects. I. and II.), Cambridge and Guy's Hosp.; C. G. Bunn (Sects. I. and II.), Charing Cross Hosp.; N. D. Dunscombe (Sect. II.), Cambridge and St. Thomas's Hosp.; G. E. Rae (Sect. I.), Sheffield; and G. K. Reeves (Sects. I. and II.), Guy's Hosp.

Medicine.—J. G. Barrie (Sects. I. and II.), Guy's Hosp.; N. D. Dunscombe (Sect. II.), Cambridge and St. Thomas's Hosp.; A. H. El Rakshi (Sects. I. and II.), University Coll. Hosp.; J. Kendall (Sect. I.), Guy's Hospital; and W. E. Neale (Sect. I.), Bristol.

Forensic Medicine.—A. H. El Rakshi, Univ. Coll. Hosp.; and C. T. Gasking, Liverpool and Sheffield.

Midwifery.—A. H. El Rakshi, Univ. Coll. Hosp.; A. Keilin, Paris and Charing Cross Hosp.; and G. E. Rae, Sheffield.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: C. G. Bunn, N. D. Dunscombe, and G. K. Reeves.

Sir Archibald Garrod will deliver the Schorstein Memorial Lecture on Friday, Feb. 20th, at 4 P.M., in the anatomical theatre of the London Hospital Medical College, taking as his subject the Diagnosis of Disease of the Pancreas.

UNIVERSITY COLLEGE HOSPITAL UNITS.—Details of the formation of these units were given in our issue of last week. Every student is to take duty during his first year for two months' clerking and two months' dressing with the medical and surgical units respectively. Thus every student will in due course pass through both units.

UNIVERSITY OF MANCHESTER: CHAIR OF PHYSIOLOGY.—The Council has appointed Mr. A. V. Hill, O.B.E., M.A., F.R.S., to the chair of physiology, vacant through the resignation of Professor W. Stirling. Mr. Hill was a scholar of Trinity College, Cambridge, was third Wrangler in 1907, and was placed in the first class in Part II. of the Natural Science Tripos (Physiology) in 1909. He was George Henry Lewes student, Walsingham, Gedge, and Rolleston prizeman. In 1910 Mr. Hill was elected to a Fellowship at Trinity College, and in 1916 was elected a Fellow of King's College. In 1918 he became a Fellow of the Royal Society. During the war he obtained the rank of Major in the Cambridgeshire Regiment, and was appointed Director of the Anti-aircraft Experimental Section of the Munitions Invention Department. The inventions which he made proved of the greatest value in the scheme of defence against attack from the air. His researches on the physiology of voluntary muscle are recognised as pioneer work of the first importance.

DEATH OF DR. G. F. WELSFORD.—George Frederick Welsford, M.B. Cantab., M.R.C.S. Eng., who died at Tiverton on Jan. 21st, in his sixty-second year, was born in America of English parents, and educated at Clifton and Caius College, Cambridge, graduating B.A. at the University in 1880. After studying at St. Thomas's Hospital, where he was a keen student, he proceeded to the M.B. degree, and in the same year took the M.R.C.S. After qualifying he settled first in practice at Woodstock, but in 1891 he entered into partnership with Mr. C. E. Liesching at Tiverton, where he remained until his recent retirement from practice. On being appointed medical officer to the Tiverton Hospital he immediately took much interest in the institution, and was largely responsible for the building of pay wards and a modern operating theatre as a Diamond Jubilee Memorial to the late Queen Victoria. He was medical representative of the staff on the house committee of the hospital, and his services were in requisition in all questions that arose. He was also medical officer to the Tiverton Workhouse and to the Washfield Poor-law district. Of wide and varied reading, he associated himself readily with matters of interest affecting the public life of the country, and by educational lectures endeavoured to create local interest in health organisation. A quiet and reserved man, Welsford was the kindest and most considerate of friends and an interesting and amusing companion. During a long and trying illness he was attended by his second wife, who had been a trained nurse before her marriage, and much sympathy is felt for both her and her daughter, who had so little enjoyment out of the well-earned rest to which they were looking forward after Dr. Welsford's retirement from active work in June of last year.

Princess Helena Victoria will distribute badges to members of the League of the Roses at the Great Northern Central Hospital, Holloway, on Thursday afternoon, Feb. 12th, at 3 o'clock, and will be received by the Marquis of Northampton.

West London Medico-Chirurgical Society.—A pathological meeting will be held to-day, Friday, Feb. 6th, in the Society's rooms, West London Hospital. Specimens will be shown at 8 p.m. by Dr. J. M. Burnford, Lieutenant-Colonel McAdam Eccles, Dr. R. R. Elworthy, Dr. Reginald Morton, Dr. George Pernet, and Dr. H. J. F. Simson.

Medico-Psychological Association of Great Britain and Ireland.—The next quarterly meeting of this association will take place on Tuesday, Feb. 24th, at 11, Chandos-street, Cavendish-square, W., under the presidency of Dr. Bedford Pierce, at 2.45 p.m. Dr. Robert Hunter Steen, professor of psychological medicine, and physician to out-patients at King's College Hospital, will read a paper entitled "Chronic Hallucinatory Psychosis."

Literary Intelligence.—Messrs. Cassell and Co. announce for early publication a second edition, by Dr. Comyns Berkeley and Mr. Victor Bonney, of "A Text-book of Gynæcological Surgery." The book has been considerably expanded, and new illustrations, from drawings by Dr. Dupuy, have been inserted.—Messrs. J. and A. Churchill announce a new work entitled "A Laboratory Manual of Elementary Colloid Chemistry," by Mr. Emil Hatschek.

Royal Devon and Exeter Hospital.—The foundation stone of the new extension, the "Victory Wing," of this hospital was formally laid by Sir R. Newman, Bart., M.P., in the presence of a large gathering. The building is to be two storeys high, and will contain 100 new beds, thus enabling the hospital in future to accommodate 300 in-patients. The cost of the scheme is estimated at £35,000, and of this sum £23,000 have been already obtained.

Dorset Insurance Committee.—At the last meeting of the Dorset Insurance Committee it was reported that on Jan. 1st there were 75,603 insured persons. The average cost of each prescription for the half-year ending June last was 9·06*d*. A member having moved that in future the number of panel patients for each medical man should be limited to 1000, a medical member of the Committee remarked "with all respect they were talking about something they knew nothing about." It was reported that the average number of "panels" in Dorset was about 800. Eventually the proposition was defeated.

Royal Medical Benevolent Fund.—At the last meeting of the Case Committee held on Tuesday, Jan. 13th, 16 cases were considered and £224 10*s*. voted to 12 of the applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 61, of M.R.C.S. Eng. who practised at Leatherhead and died in 1861. Until recently has been a school matron, and received from £30 to £40 a year. Now unable to obtain a post, owing chiefly to age and to the demobilisation of so many women. Voted £10.—Daughter, aged 47, of F.R.C.S. Irel. who practised in India and died in 1899. Has had a physical breakdown, after 15 years' rescue work in East London. Has a pension of £45, and receives about £4 from dividends, also £12 by teaching when possible. She also lets rooms, by which she earns about £30. Has a house in London, which brings her in £20 a year. Rates and taxes of London house, £26 10*s*.; rent of house in which she is now living, £43. Applicant has to support a friend who lives with her, and the weekly income works out at about 17*s*. to keep two. Voted £10.—Daughter, aged 43, of F.R.C.S. Irel. who practised in India and died in 1899. Sister of the above applicant. Has been doing rescue work for 12 years, but has been obliged to give it up owing to ill-health. She now lets rooms, from which she earns about £18. Receives pension of £45 and £2 from dividends. Rent 5*s*. for a cottage right in the country, and pumps own water and has no gas. Does own washing and attends to lodgers. Voted £10.—Daughter, aged 46, of M.R.C.S. Eng. who practised at Lincoln and died in 1908. Has no income, and is entirely dependent on her mother, who is an annuitant of the Fund. Rent 15*s*. for one room. Voted £12 in 12 instalments.—Daughter, aged 67, of L.R.C.S. Edin. who practised at Liverpool and died in 1893. Applicant lets rooms, from which she receives about £40. Has occasional help from another charity. Suffers from ill-health. Rent and rates, £26 2*s*. Cannot manage owing to the high cost of living. Relieved three times, £31. Voted £18 in 12 instalments.—Daughter, aged 67, of M.D. Edin. who practised in London and died in 1873. Applicant lives with two sisters, and they take in paying guests. Receives £48 from dividends and £30 from sister-in-law and £15 by teaching. Requires help towards paying coal bill. Relieved four times, £45. Voted £15.—Widow, aged 39, of M.R.C.S. Eng. who practised at Swansea and Liverpool and died in 1914. Has no income and is living with mother, whose income is limited. Has one daughter, aged 11, whom the Guild are helping to educate. Suffers from ill-health. Relieved five times, £60. Voted £12 in 12 instalments.—L.R.C.P. & S. Edin., aged 62, widower, who practised at Old Kirkpatrick. Receives £20 from another charity and £50 from his only son. Rent and taxes £28 10*s*. Suffers from ill-health. Relieved 15 times, £180. Voted £12 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters J. Symonds, C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Hospital Conditions in the Western Counti —A strong appeal has been issued by the Committee of South Devon and East Cornwall Hospital, Plymouth, increased financial support. It is estimated that at the clos the year there will be a deficit against the hospital of £700 The annual meeting of the subscribers to the Plymouth Infirmary was recently held. The medical report stated t 2106 patients had been treated during the past year and financial statement showed an unfavourable balance £400.—The Committee of the Royal United Hospital, Ba report that the total debt on this institution is £18,000.

No. 14 General Hospital, Wimereux: A Sta Dinner.—A dinner of the staff of this hospital was held at Victory Restaurant, Leicester-square, London, on Feb. 2 Sir John Goodwin, Director-General of the Army Med Service, and formerly commandant of the hospital, presid The company numbered about 100. General Sir Art Sloggett proposed the toast "No. 14 General Hospital," which General Sir John Goodwin responded. In the cou of the evening the following telegram was received from King in response to a message of loyal greeting:—

> I am commanded to express the thanks of the King to the s of No. 14 General Hospital, Wimereux, for their kind mess addressed to His Majesty on the occasion of the dinner, wh under the presidency of General Goodwin, their former and tinguished Commandant, has reunited that noble band of men women who ministered to the wounded and sick in one of largest hospitals in France. The King recalls with pleasure visit in October, 1915, to the Wimereux Hospital and recognises t the same spirit of devotion and comradeship which animated t work in those days has brought them together again this even His Majesty congratulates them on this happy reunion.

Some of the company had travelled from the North Scotland, France, and Belgium in order to be present.

The late Dr. G. Duffus.—George Duffus, w died at Woking on Jan. 18th, was a native of Cullen, wh he received his early education at the Free Church Sch He afterwards went to the University of Aberdeen, where passed a successful studentship, winning the gold medal materia medica and the Keith gold medal for practi surgery. After graduating M.B., C.M. in 1884 he beca assistant superintendent to the County Asylum, Macc field, and later superintendent of a private asylum n Liverpool, retiring from professional work about 15 years a Dr. Duffus was a benefactor to the poor of his native to in which he always took the keenest interest.

Death of Dr. D. Goyder.—David Goyder, ho rary physician to the Bradford Infirmary, died on Jan. 2 at Bradford in his ninety-first year. The son of a Swed borgian minister, he was born at Accrington in 1829, and the family moving to Glasgow was educated as a chem and obtained the diploma of the British Pharmaceuti Society. For a time he was engaged in his calling Ipswich, but returned to Glasgow, where he studied me cine at the University and graduated M.D. in 1860. the same year he became a licentiate of the Royal College Surgeons of Edinburgh. From 1862 to 1871 he was in partn ship at Bradford, afterwards practising as a consulta One of the founders in 1863 of the Bradford Medi Chirurgical Society, of which he was an ex-Preside having been honorary secretary for 25 years, he took active part in discussions and investigations into wo sorters' disease, and on resigning his position as secret was presented by his colleagues with his portrait in o He was President of the Bradford Philosophical Soci from 1901 to 1903.

BOOKS, ETC., RECEIVED.

Baillière, Tindall, and Cox, London.
  Manual of Surgery (Rose and Carless). 10th ed. By A. Carl C.B.E., M.S. Lond. Pp. xii. + 1562. 30*s*.
Bale, John, Sons, and Danielsson, London.
  Nursery Schools: A Practical Handbook. By Margaret McMill Dr. W. J. Howarth, and others. Pp. 106. 5*s*.
Cassell and Co., London, New York, Toronto, and Melbourne.
  Herman's Difficult Labour. 6th ed., revised and enlarged. C. Oldfield, M.D. Pp. 573. 16*s*.
Churchill, J. and A., London.
  Manual of Obstetrics for the Use of Students and Junior Pra tioners. By O. St. John Moses, M.D., Major I.M.S. Pp. 528.
  The Principles of Anatomy as Seen in the Hand. By Prof Wood-Jones, D.Sc., M.B. Pp. 325. 15*s*.
Constable and Co., London.
  The Use of Colloids in Health and Disease. By Alfred B. Sea With foreword by Sir Malcolm Morris, K.C.V.O. Pp. 120. 8*s*
Frowde, Henry, and Hodder and Stoughton, London.
  Cunningham's Manual of Practical Anatomy. Revised and edi by Prof. A. Robinson. 7th ed. Vol. I., pp. 451. 12*s*. 6*d*.
  Syphilis in Childhood. By L. Findlay, M.D. Pp. 154. 8*s*. 6*d*.
  A Manual of War Surgery. By Col. S. Barling, A.M.S., and Ma J. T. Morrison, R.A.M.C. (T.). With an introduction by Maj General Sir George H. Makins, P.R.C.S. Pp. 480.
  Surgical Operations: A Text-book for Nurses. By E. W. H Groves, M.D., F.R.C.S. Pp. 256. 21*s*.

FIN, CHARLES, AND Co., London.

mentary Practical Chemistry for Medical and Other Students. y J. E. Myers, D.Sc., and J. B. Firth, M.Sc. 2nd ed. Pp. 194. s. 6*d*.

dical Handbook for the Use of Practitioners and Students. By r. R. S. Aitchison. 5th ed., revised. Pp. 390. 10*s*. 6*d*.

EMANN, WILLIAM, London.

diography in the Examination of the Liver, Gall Bladder, and ile Ducts. By R. Knox, M.D. Pp. 64. 7*s*. 6*d*.

DER AND STOUGHTON, London.

emistry in Everyday Life. By E. Hendrick. Pp. 102. 3*s*. 6*d*.

PTON, H., London.

philis: A Treatise on Etiology, Pathology, Diagnosis, Prognosis, rophylaxis, and Treatment. By H. H. Hazen, A.B., M.D. Pp. 647. 6*s*.

e Medical Aspects of Mustard Gas Poisoning. By A. S. Warthin, M.D., and Carl V. Weller, M.S., M.D. Pp. 268. 42*s*.

ENAISSANCE DU LIVRE, Boulevard S. Michel 78, Paris.

Sens de la Vie Humaine. By Dr. E. Osty. Pp. 272. 5 fr.

AN AND SCHWARZENBERG, Berlin and Vienna.

e Therapie der Haut und venerischen Krankheiten. Von Prof. Dr. J. Schäffer. Pp. 485. M.22.

e Mehlfrüchtekur bei Diabetes Mellitus. Von Prof. W. Falta. Pp. 388. M.50.

e Geschlechtskälte der Frau. Von Dr. W. Stekel. Pp. 402. M.40.

EL, F. C. W., Leipzig.

hrbuch der Physiologie des Menschen. Von N. Zuntz und A. Loewy, in Berlin. Pp. 789. M.38.

EY, JOHN, New York. CHAPMAN AND HALL, London.

lorination of Water. By J. Race. Pp. 158. 7*s*.

Appointments.

cessful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than* 9 *o'clock on the Thursday morning of each week, such information for gratuitous publication.*

GLANVILLE, L. R. G., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Medical Officer to the Newton Abbot (Devon) Hospital.

K, N. F., M.B., B.C. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., Honorary Consulting Surgeon to the Moretonhampstead (Devon) Cottage Hospital,

COL, W., M.B., Ch.B. Glasg., Ophthalmic Surgeon to the Gloucestershire Royal Infirmary and Eye Institution.

LTERS, H. B., M.R.C.S., L.R.C.P. Lond., Medical Officer for the Knighton District by the Newton Abbot (Devon) Board of Guardians.

OD, A. E., L.D.S. R.C.S. Eng., Dental Surgeon to the Dorset Education Committee.

yal Free Hospital and London (Royal Free Hospital) School of Medicine for Women: WILLIAMSON, G. S., *M.C.*, M.B., Ch.B. Edin., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., Pathologist and Director of Pathological Studies; SCHOFIELD, MARY, M.R.C.S., L.R.C.P. Lond., Clinical Pathologist and Assistant Director of Pathological Studies.

rtifying Surgeons under the Factory and Workshop Acts: ALLINGHAM, H. R., M.B., B.S. Lond. (Totnes); FLETCHER, I., M.B., C.M. Glasg. (Workington); WHEELER-BENNETT, C. W., M.B., Ch.B. Oxford (Steyning); WOODROOFFE, G. B., M.B., B.C. Camb. (Lostwithiel).

Vacancies.

For further information refer to the advertisement columns.

rgyll and Bute District Asylum, Lochgilphead, Argyllshire.—Asst. M.O. £250.

shton-under-Lyne District Infirmary.—Third H.S. £150.

edford County Hospital.—H.P. £150.

elgrave Hospital for Children, Clapham-road, S.W.—Asst. P.

ethlem Royal Hospital, Lambeth-road, S.E.—Sen. Res. Asst. P. £600.

irmingham, City Hospital, Little Bromwich.—Asst. M.O. £300.

ristol, City and County of.—Asst. Tuberc. O. £525.

ristol General Hospital.—Senr. R.M.O. £300.

ritish Guiana.—Asst. M.O. £400.

arlisle, Cumberland County Council.—Asst. County M.O. £500.

arlisle, Cumberland Infirmary.—Res. M.O. £200.

hartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.

hesterfield and North Derbyshire Royal Hospital.—Senior H.S. £300.

erby, Derbyshire County Council Tuberculosis Committee.—Asst. Res. M.O. £300.

orchester, Dorset County Council Education Committee.—School Dentists. £400.

urham County Council.—Female Asst. Welfare M.O. £500.

ast London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s.

ast Suffolk County Education Committee.—Dentist £400.

alkland Islands.—Dent. S. £500.

lamorgan County Council.—Ven. Dis. M.O. £750.

loucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

ovan District Asylum, Hawkhead, Cardonald, Glasgow.—Jun. Asst. M.O. £300.

Great Northern Central Hospital, Holloway, London, N.—S. to Out-patients.

Hackney Metropolitan Borough.—M.O. 10*s*. per hour.

Hammersmith School Treatment Centre.—S.'s and Anæsths. £70. Two Dentists. £55.

Hospital for Sick Children, Great Ormond-street, London, W.C.—P. to Out-patients.

Hull Education Committee.—Sch. Dentist. £350.

Hull Royal Infirmary.—Asst. H.S. £250.

Ilford Urban District Council.—Asst. M.O.H. £650.

Kensington Infirmary, Marloes-road.—Temp. Asst. Res. M.O. £6 6*s*. per week.

King's College Hospital, Denmark Hill, S.E.—Asst. Radiographer.

Kingston-upon-Hull City and County.—Res. M.O. £500.

Lancashire County Council, School Medical and Child Welfare Department.—Dentist. £600.

Lancaster County Asylum.—Asst. M.O. £300.

Lancaster, Royal Albert Institution for the Feeble-Minded.—Asst. M.O. £500.

Leicester Royal Infirmary.—H.S. £250.

Leyton Urban District Council Education Committee.—Second Sch. Dentist. £400.

Lincoln County Hospital.—Jun. H.S. £150.

Liverpool, Fazakerley Sanatorium for Tuberculosis.—Asst. Res. M.O. £300.

Liverpool Infirmary for Children.—H.P. £90.

London County Council, Mental Hospital, Cane Hill, Coulsdon.—Asst. M.O. 7 gs. a week.

London County Council Mental Hospitals Service.—Fifth Asst. M.O.'s. £300.

Maidstone, West Kent General Hospital.—H.P. £200. Hon. Orthop. S. and M.O.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.

Manchester Union.—M.O. £1000.

Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.

Merthyr Tydfil County Borough.—Female M.O. £500.

Newcastle-upon-Tyne and Northumberland Sanatorium for Consumptives, Barrasford, North Tyne.—Med. Supt. £500.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

New Zealand, Auckland Hospital.—Bact. and Path. £900.

Northumberland County Council.—County M.O.H. and Sch. M.O. £800.

Norwich City.—Asst. M.O.H. £350.

Nottingham City Asylum, Mapperley Hill.—Sec. Asst. M.O. £400.

Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept.

Notts County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £500.

Queen Mary's Hospital for the East-End, Stratford, E.—Hon. Asst. P.'s. Res. M.O.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Res. M.O. £200.

Reading, Royal Berkshire Hospital.—Second H.S. £200.

Roxburgh County.—Asst. Tuberc. O. £450.

Royal Chest Hospital, City-road, E.C.—Res. M.O. and H.P. £200 and £120.

St. Bartholomew's Hospital and College.—Sen. Demonstr. of Physiology. £400.

St. Mary's Hospital, Paddington, W.—Clin. Asst. in X Rays Dept.

St. Thomas's Hospital, S.E.—Fellowship. £600.

Sheffield Royal Hospital.—Asst. Cas. O. £120.

Shrewsbury Borough.—M.O.H. £650.

South London Hospital for Women, South Side, Clapham, S.W.—Female Dental S. £25.

Southport General Infirmary.—Sen. H.S. £250.

Stoke-on-Trent.—Female M.O. £500.

Straits Settlements and Federated Malay States.—M.O.'s.

Sunderland County Borough.—Asst. M.O.H. and Maternity and Child Welfare M.O. £500.

University of London, South Kensington.—Examiners.

Wakefield, Clayton Hospital.—Jun. H.S. £150.

Whittingham, Preston, Lancs, County Asylum.—Asst. M.O. £300.

Wigan County Borough Education Committee.—Part-time School Dentist. £150.

Wigan Infirmary.—Junior H.S. £225.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Hatfield, Salford and Stretford, Shrewsbury, and at Long Melford.

Births, Marriages, and Deaths.

BIRTHS.

BURNHAM.—On Jan. 27th, at a nursing home, Birmingham, the wife of C. Burnham, M.B., Ch.B., F.R.C.S. Edin., of a daughter.

COMYN.—On Jan. 25th, at White House, Hythe, the wife of A. F. Comyn, M.B., of a daughter.

FITZMAURICE-KELLY.—On Jan. 27th, at Palmeira-mansions, Hove, the wife of Major M. Fitzmaurice-Kelly, R.A.M.C., of a daughter.

MCCALL.—On Jan. 27th, at Glenwood, Eltham-road, Lee, S.E., the wife of H. Dundas McCall, M.R.C.S., L.R.C.P., of a son.

SCOTT.—At The Terrace, Camberley, the wife of Major J. W. L. Scott, D.S.O., R.A.M.C., of a son.

VIVIAN.—On Jan. 25th, at Colden Manor, Twyford, Hants, the wife of C. St. A. Vivian, late Temporary Captain, R.A.M.C., of a daughter.

MARRIAGES.

STANGER—BIRKLEY-FORRESTER.—On Jan. 29th, at Fairford Church, Geoffrey Stanger, M.B., to Muriel, third daughter of the Rev. R. Birkley-Forrester and Mrs. Birkley-Forrester.

DEATHS.

BRETTINGHAM.—On Jan. 18th, at Christchurch-road, Bournemouth, Charles Edward Seppings Brettingham, L.R.F.P.S., D.P.H., &c.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, Feb. 12th.—Papers:—Mr. J. W. McBain and Mr. C. S. Salmon: Colloidal Electrolytes. Soap Solutions and their Constitution (communicated by Prof. S. Young).—Mr. C. C. Farr and Mr. D. B. Macleod: On the Viscosity of Sulphur (communicated by Dr. C. Chree).—Mr. C. V. Raman and Mr. B. Banerji: On Kaufman's Theory of the Impact of the Pianoforte Hammer (communicated by Dr. G. T. Walker, C.S.I.).—Commdr. T. Y. Baker, R.N., and Prof. L. N. G. Filon: On a Theory of the Second Order Longitudinal Spherical Aberration for a Symmetrical Optical System.—Dr. S. Chapman: A Note on Dr. Chree's Discussion of Two Magnetic Storms.—Dr. C. Chree: An Explanation of the Criticisms on Dr. Chapman's Recent Paper "An Outline of a Theory of Magnetic Storms.—Prof. J. W. Nicholson: The Lateral Vibrations of Sharply Pointed Bars.—Mr. R. E. Slade: A New Method of Spectrophotometry in the Visible and Ultra-Violet and the Absorption of Light by Silver Bromide (communicated by Sir Herbert Jackson, K.B.E.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Feb. 10th.

OCCASIONAL LECTURE: at 5 P.M.

Professor A. D. Waller: The Measurement of Human Emotion and of its Voluntary Control.

MEETINGS OF SECTIONS.

Monday, Feb. 9th.

WAR (Hon. Secretaries—H. B. Hill, Oliver Robinson, J. McIntyre): at 5.30 P.M.

Discussion:

On "Gas Poisoning," to be opened by Sir Wilmot Herringham. Colonel Cummins, Dr. C. G. Douglas, Professor J. S. Haldane, and others will also speak.

Thursday, Feb. 12th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.

Resumed Discussion:

On "The Merits and Defects of the British Health Resorts."

Dr. F. G. Thomson, Dr. J. Campbell McClure, and Dr. W. P. Kennedy will speak.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Paper:

Dr. Rows, C.B.E.: Anxiety States.

Friday, Feb. 13th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5.30 P.M.

Cases (at 5 P.M.):

Will members who desire to show cases please communicate with one of the Hon. Secretaries?

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Feb. 9th.—8.30 P.M., Dr. H. Drinkwater: The Clinical or Naked Eye Diagnosis of Diphtheria and Other Infections of the Fauces (illustrated with the epidiascope, by coloured drawing and photographs).—Dr. T. B. Hyslop: On Some New Methods of Illustration (illustrated by the epidiascope).

BRITISH PSYCHOLOGICAL SOCIETY (EDUCATION SECTION), London Day Training College, Southampton-row, W.C.

Thursday, Feb. 12th.—6 P.M., Dr. C. W. Kimmins: The Dreams of Children in Blind, Deaf, and Industrial Schools.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Monday, Feb. 9th.—5 P.M., Hunterian Lecture:—Prof. H. T. Gray: The Influence of Nerve Impulses on Gastro-Intestinal Disorders—A Surgical Study.

Wednesday.—5 P.M., Hunterian Lecture:—Prof. J. Sherren, C.B.E.: The Late Results of the Surgical Treatment of Chronic Ulcers of the Stomach and Duodenum.

Friday.—5 P.M., Hunterian Lecture:—Prof. W. G. Spencer, O.B.E.: The Historical Relationship between Experiments on Animals and the Development of Surgery. Lecture I.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—

Tuesday, Feb. 10th.—5 P.M., Lecture III.

A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—

Wednesday, Feb. 11th.—4.30 P.M., Lecture III.

A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.:—

Thursday, Feb. 12th.—4.30 P.M., Lecture VI.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Monday, Feb. 9th.—9.15 A.M., Lecture V.:—Dr. Thomps Organic and Functional Nervous Diseases, Meningitis Mental Deficiency. (At the Anatomical Theatre.)

Wednesday.—10 A.M., Clinical Demonstration:—Dr. Miller. the Children's Out-patient Department.)

Saturday.—10.15 A.M., Lecture VI., Dr. Hutchison: Gen Diseases. (At the Anatomical Theatre.)

NATIONAL HOSPITAL FOR DISEASES OF THE HEART PO GRADUATE COURSE, Westmoreland-street, W.

Monday, Feb. 9th.—11 A.M., Out-patients: Dr. Goodall. 2 P In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P Lecture:—Dr. Goodall: Heart Block.

Thursday.—10 A.M., In-patients: Dr. Hamill: 2 P.M., C patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patien Dr. Wells.

Saturday.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture H of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculo for Medical Men and Women qualifying to become Tuber losis Officers, General Practitioners, and others. Bacteri gical Demonstrations will be given in the Laboratories of Institute, and visits arranged to Sanatoriums, Tuberculo Dispensaries, &c.

Thursday, Feb. 12th.—5 P.M., Lecture V.:—Dr. D. P. Sutherla The Work of a Tuberculosis Department.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Pri of Wales's General Hospital, Tottenham, N.

Tuesday, Feb. 10th.—2 P.M., Demonstration II.:—Mr. H. Carson: Hernia, with illustrative cases. 4.30 P.M., Lecture Dr. A. Giles: Some Gynæcological Fallacies.

NATIONAL HOSPITAL FOR THE PARALYSED AND E LEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Feb. 9th.—2–3.30 P.M., Out-patient Clinic: Dr. Colli 3.30 P.M., Dr. Aldren Turner: Paraplegia. II.

Tuesday, Feb. 10th.—2–3.30 P.M., Out-patient Clinic: Dr. Grain Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.

Wednesday, Feb. 11th.—2 P.M., Mr. Armour: Surgical Treatme of Cerebral Tumours. II. 3.30 P.M., Dr. Grainger Stewa Disseminated Sclerosis.

Thursday, Feb. 12th.—2–3.30 P.M., Out-patient Clinic: I Farquhar Buzzard. 3.30 P.M., Dr. Saunders: Progressi Muscular Atrophy.

Friday, Feb. 13th.—2–3.30 P.M., Out-patient Clinic: Dr. Gord Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

Saturday, Feb. 14th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dea

WEST LONDON POST-GRADUATE COLLEGE, West Lond Hospital, Hammersmith, W.

Saturday, Feb. 7th.—10 A.M., Dr. A. Saunders: Medical Diseas of Children.

Monday, Feb. 9th.—5 P.M., Mr. Addison: Appendicitis Children.

Tuesday.—5 P.M., Dr. Burnford: Clinical Lecture, with cases.

Wednesday.—5 P.M., Mr. Owen: Pneumothorax.

Thursday.—5 P.M., Dr. Simson: Uterine Fibroids.

Friday.—4.30 P.M., Special Lecture:—Mr. H. Groves: Bo Grafting in the Treatment of Fractures.

HOSPITAL FOR CONSUMPTION AND DISEASES OF TH CHEST, Brompton, S.W.

Wednesday, Feb. 11th.—4.30 P.M., Dr. Perkins: Demonstratio in the Wards.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-stree Piccadilly, W.

Tuesday, Feb. 10th.—3 P.M., Lecture:—Prof. G. E. Smith: Th Evolution of Man and the Early History of Civilisation. III The Search for Gold.

Thursday.—3 P.M., Prof. A. E. Conrady: Recent Progress i Applied Optics. (Lecture II.)

Friday.—9 P.M., Prof. W. M. Bayliss: The Volume of Blood an its Significance.

Saturday.—3 P.M., Sir Frank W. Dyson: The Astronomica Evidence bearing on Einstein's Theory of Gravitation: III Deflection of Light in the Sun's Gravitational Field.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE DEMONSTRATIONS, at the Sheffield Roya Hospital.

Monday, Feb. 9th.—3.30 P.M., Dr. Nutt: X Ray Examination o Bones and Joints.

Tuesday.—4 P.M., Dr. Hay: Diseases of Conjunctiva.

Wednesday.—3.30 P.M., Dr. Wilkinson: Accessory Sinu Disease.

Thursday.—3.30 P.M., Dr. Skinner: Inflammations of Skin.

Friday.—4 P.M., Dr. Hay: Diseases of Cornea.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

Wednesday, Feb. 11th.—4.15 P.M., Mr. B. Whitehouse: Gonor rhœa in the Female. (Lecture I.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC

Tuesday, Feb. 10th.—4.30 P.M., Practical Demonstration:—Loca Anæsthesia; Technique.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospital alternately.

Thursday, Feb. 12th.—4.30 P.M., Lecture:—Mr. Morley: Clinica Manifestations of the Mobile Cæcum. (At Ancoats Hospital.

otes, Short Comments, and Answers to Correspondents.

MAN'S ORIGIN.

By Professor G. Elliot Smith, M.D., F.R.C.P.

LECTURE on Man's Origin, the first of a series of three the Evolution of Man and the Early History of Civilisa- n, by Professor G. Elliot Smith, was given at the Royal stitution on Jan. 27th.

Man's Fossil Ancestors.

he first part of the lecture was occupied with reviewing palæontological evidence of the evolution of mankind. good deal of new evidence had been collected on this bject in the last 10 years, as a result of which the lecturer s able to show not only the stages of man's develop- ent, but the particular characters in his remote progenitors m which it had resulted. No remains of the human mily had been discovered in geological formations older an the early Pleistocene, but there was evidence from the iddle or early Pliocene period of a differentiation from the es. Incidental characters, though not themselves respon- le for development, are useful in proving the affinities of fferent genera. Such characteristics were demonstrated means of lantern-slide drawings of the transitional ages of jawbone from those of the Tarsioids to those of e modern Anthropoid apes. The resemblance of Tarsioid aracters to contemporary Lemuroids was also shown. though these were very striking, the lecturer pointed out at there were also certain differences to be observed, and at the features in which Tarsius differs from the con- mporary Lemur are the same features which show his finity with the primitive apes and with man. Thus arsius is so closely allied with the Lemuroids that the igin of the two from one undiscovered common stock is garded as certain, and the same animal, whose modern presentatives still inhabit the North American continent, hibit also the characters to which man owes his present premacy.

The Secret of Man's Success.

Pictures of the skull of Lemur and Tarsius were shown to lustrate their relative increase of brain capacity above at of the other mammals. The relationship of Lemur these latter is not yet known definitely, but a close lationship had been proven with certain of the shrews. he development of the brain was next called in as evidence the evolutionary process. Below mammals the dominant uiding sense is that of smell and the olfactory region of e brain occupies the dominant position. In the mam- al's brain sight, hearing, and touch are represented, s well as a motor area and an area for "discrimination." he brain of Tarsius showed a relatively huge visual area nd a rapidly diminishing olfactory area. The important volutionary changes in this brain were due to a flattening the face and to the forward-looking eyes, these two haracters resulting in binocular stereoscopic vision. The creased information which resulted from this new power roused curiosity, and so skilled movements of the hands ere called into play, the sense of touch developed, and a ew section of cerebral cortex to correlate the sense of touch ith that of vision. The mechanism of convergence also rovided information and assisted in the development of the rain. In the Lemuroids the projecting snout has prevented ll these developments, and an interesting contrast in intelli- ence is provided at the Zoo to all who will compare the ehaviour there of the lemurs with that of the anthropoid pes.

Man represents the straight line of development. It is the nimals which have departed from this straight line and or self-preservation have developed specialised characters e.g., the great strength of the gorilla), who have failed in he race for supremacy. Man has survived and become the reatest of the primates because of his faithful dependence pon the normally developing brain.

The Ethnological Munroe Doctrine.

On Feb. 3rd Professor Smith gave the second lecture of he series, entitled "Elephants and Ethnologists." It was levoted to a discussion of the earliest records of civilisation s found in the excavated monuments and codices of the ncient city of Copan, Honduras. There are two theories eld by ethnologists to account for the existence of this ivilisation, the earliest records of which date back to about 35 B.C. The one theory supposes that it sprang indigenously rom among the American aborigines, and the second that t was implanted by early voyagers across the Pacific. The irst theory is held by the majority of ethnologists at the present time, and especially by the Americans, who hold it as a kind of dogma—and it was this theory which Professor Smith set himself, most successfully, to explode. The influence of Eastern conventional art in the earliest drawings and sculpture of the West was proved by reference to the drawings and sculpture found in Copan and in Cambodia—the nearest point in the Malay Archipelago. All the traditions recorded in the ancient Sanskrit writings—the Vedas—find their counterpart in the earliest Western art. The elephant upon which the rain-god Indra was wont to ride is especially prominent, though American ethnologists have tried to explain away the appearance of this foreign animal in various unsatisfactory ways. Descriptions of a creature with "a nose so long that he can draw water from a well" are even found in the folk-lore of the North American Indians. It is impossible to summarise all the detailed argument. but all who listened to Professor Smith must agree that he thoroughly proved his case for the migration of civilisation westwards from the cradle of the race.

COLONIAL HEALTH REPORTS.

Ashanti.

IN a report by the Chief Commissioner for the year 1918 it is stated that the population, admittedly under-estimated at 287,814 in 1911, has increased since then. The European population in 1918 comprised 224 Government officials, 108 merchants, 102 miners, 7 missionaries, and 50 Syrians. Amongst Government officials there were 2 deaths and 24 invalidings, and among the miners 6 deaths and 8 invalidings. Five Syrian traders died from influenza.

There was a marked increase in the number of patients in the European Hospital, due largely, but not entirely, to an epidemic of influenza which swept over Coomassie in the month of October. The presence in Coomassie during the last three months of the year of an unusually large number of officers and British N.C.O.'s of the Gold Coast Regiment, who had returned from the East African campaign, many of them saturated with malaria, helped to swell the total. The health of the civilian Government officials continued fair notwithstanding the prolonged tours and increased duties demanded of them by the exigencies of the service. The health of the general European population was fair. There is evidence of the steadily increasing popularity of the Government native hospitals and of the increasing desire of the natives to avail themselves of the benefits of European treatment.

Influenza assumed a pandemic form in October and spread from Coomassie to all villages in the vicinity and also along the Ejura Road towards the Northern Territories. The onset was inevitable owing to the contagiousness of the disease and the impossibility of instituting effectual preventive measures in such a country. In Coomassie 381 natives, 5 Syrians, and 2 Europeans were registered as having died of influenza, but this by no means represents the real loss sustained by the community, as by far the greater portion of bodies was taken out of the town for burial and remained unregistered. The following is an approximate return of the deaths due to the scourge: Central Province, 4500; Western Province, 1500; Northern Province, 500; Southern Province, 2500; total, 9000.

The most prevalent diseases besides influenza were the same as in previous years, viz.: malaria, skin diseases, and diseases of the pulmonary and digestive systems. 2846 people were vaccinated—2264 successfully. The rainfall for the year was 61·96 inches at Coomassie, 67·17 at Obuasi, 71·73 at Kintampo, and 41·21 at Sunyani. The mean temperature was 74·95° at Coomassie, 78° at Obuasi, and 79° at Kintampo.

The climate is not suited for permanent European settlement. The average stay in the country is of 12 months' duration, after which recuperation in a more bracing climate is desirable

Northern Territories of the Gold Coast.

Mr. C. H. Armitage, Chief Commissioner, reporting on the affairs of these Territories for 1918, writes that there were no deaths among the European officials, but 80 were placed on the sick list during the year and 10 were invalided. All the invalidings but one occurred amongst the European officers and non-commissioned officers of the training centre which has been established at Tamale, and which has greatly increased the number of Europeans in the country.

The Census completed in 1911 gave an estimated population of 361,806 to the Northern Territories, with a computed area of 31,100 square miles—an average of 11·6 persons to the square mile. The Census returns for the Southern and North-Western Provinces were considered to be fairly accurate, but those of the North-Eastern Province fell far short of being correct, and it is estimated that not more than two-thirds of the inhabitants were enumerated. Systematic work continues to be carried on in order to render the next Census returns reliable in every respect. In spite of a heavy infant mortality it is considered that the population at the present day is greatly in excess of that shown in the last Census returns.

An outbreak of measles occurred in May at Bolgatanga, in the Zouaragu district of the North-Western Province, from which 425 deaths were reported, mainly among the children, who, owing to the shortage of food that then prevailed, were badly nourished and unable to withstand the attack. The North-Western Province suffered heavily from disease throughout the year. During the first quarter small-pox, which had broken out in 1917, was still rife in certain villages, and it was not until the second quarter that an adequate supply of lymph was sent up and vaccination was undertaken. This disappeared by the end of the quarter. 5687 natives were vaccinated in the Tumu District towards the end of the year by a French native vaccinator, who used serum prepared at Ougadougu by the French medical officer, which was kindly supplied through the good offices of the Resident at Leo. 140 children were inoculated at Tumu under the supervision of our medical officer, when only 8 of these showed no signs of the serum having taken. Many more people could have been vaccinated had not the natives been prostrated by influenza when the vaccinator's services were available.

In March a mysterious disease, afterwards diagnosed as anthrax, made its appearance in the Lorha District and was accountable for a number of deaths. In October the whole province was swept by influenza, which levied a heavy toll on the unfortunate natives. There is reason to believe that the following figures, obtained from the chiefs and headmen, greatly under-estimate the mortality that occurred: Southern Province, 2517; North-Eastern Province, 18,267; North-Western Province, 7880; total, 28,664. It is thought that the high mortality in the North-Eastern Province was due to the lack of clothing worn by the natives. Another feature of the epidemic was that it seemed to pass by the old and decrepit of both sexes and to select its victims from among the young and robust.

Leprosy is not on the increase and, while uncommon in the Southern and North-Western Provinces, is of more frequent occurrence in the North-Eastern Province. The natives look upon it as "a visitation of Allah," but say that it shows no signs of spreading and are generally averse to compulsory isolation.

The climate of the Northern Territories, while similar to that of the Gold Coast and Ashanti, may be said in comparison with them to be more trying in its extremes. It possesses an insidious quality that lowers the vitality of Europeans and renders unduly prolonged residence on their part inadvisable, and it is generally recognised that a period of recuperation in a more bracing and salubrious climate is necessary after a year's stay in the country.

A VOCAL THERAPY SOCIETY.

CURATIVE singing, to which allusion has recently been made in the public press, is a well-established treatment, training in singing having proved to be valuable, not only for the development of deficient breathing and the relief of loss of voice by stammering, but also by helping in the recovery of memory. The exhilarating effect of vocal efforts have resulted in a gain of mental and physical control. An earnest appeal for subscriptions to support and organise this form of treatment has been issued by Sir Bryan Donkin, chairman of the Vocal Therapy Fund, and the Dowager Countess of Carnarvon, vice-chairman, and replies should be made to the honorary treasurer, H. E. Bury, Esq., 47, Lincoln's Inn Fields, London, W.C. 2, or the honorary secretary, 32, Charles-street, Mayfair, W. 1.

"GREY POWDERS."

RECENTLY, at Exeter, a druggist was summoned for selling to the sanitary inspector, "grey powders," which were not of the substance demanded. It was stated that the powders contained calomel with other ingredients, and not the mercury and chalk of the official Pharmacopœia preparation. For the defence it was stated that the firm had been selling "a grey powder" since 1868; it was a preparation of their own and grey in colour. A magistrate remarked that *before* 1898 only Latin descriptions were used in the Pharmacopœia, and consequently the term "grey powder" was not mentioned. For the defence it was contended that six grey powders had been purchased as one article, and only one powder had been analysed, whereas the whole six powders should have been examined. The bench of magistrates upheld this view, and the case was dismissed. The deputy town clerk remarked that the local authority had obtained their object in ventilating the case. The public danger indicated by the defence is a little startling.

A MYXŒDEMATOUS ARTIST.

To the Editor of THE LANCET.

SIR,—Dr. H. Crichton Miller, in his paper on the Endocrine Glands in Mental Disorder read before the Royal Society of Medicine and reported in THE LANCET of Jan. 24th last, asks "Who has ever conceived of a myxœdematous artist?" It is true the case was not one of myxœdema, but since this and cretinism are both due to hypothyroidism Dr. Miller may be interested to know that a *cretin imbecile*, named Gottfried Mind, who was born in Berne in 1768 and who died at the age of 46 years, acquired such a reputation as an artist as to be known as "The Cat's Raphael." He is referred to in my book on "Mental Deficiency" under "Idiots Savants."

I am, Sir, yours faithfully,

Jan. 27th, 1920. A. F. TREDGOLD, M.D.

AN INTERESTING ETYMOLOGY.

To the Editor of THE LANCET.

SIR,—For many years I have seen the name "Stovaine" referred to in medical literature, and have also seen the name in medical dictionaries without any etymology. Last week, when wishing to discover whether the word had a final "e," I consulted Dorland's Medical Dictionary, last edition, and found this interesting addition: "Named for the discoverer, Fourneau, which is French for 'stove.'" Being interested in etymology, I thereupon wrote to Messrs. Poulenc Frères, of Paris, to confirm this, and their reply, dated Jan. 15th, should, it seems to me, be preserved. The translation is as follows.

"The etymology given by the American dictionary of 'stovai is perfectly correct. At the time of the baptism of the new lo anæsthetic, which first saw the light in our laboratories, we wisl to introduce into the fancy name which should designate it name of the discoverer, M. Fourneau. As it was impossible create a euphonic word in French with this name, we took English translation of the common corresponding name, which l itself marvellously to this purpose. M. Fourneau has been several years the head of our research laboratories. While rema ing our technical adviser, he is now professor of chemiotherapy the Pasteur Institute and a member of the Academy of Medicine

Future students might be grateful for this information.

I am, Sir, yours faithfully,

Jan. 19th, 1920. W

THE MEMBERS OF PENSIONS BOARDS.

To the Editor of THE LANCET.

SIR,—Surely there is something very far wrong wh doctors with enormous panel lists of 3000 and 4000 c afford to spend so much of their time officiating on t medical pensions boards. Is it at all reasonable to expe that these men can be doing their duty to their pan patients and be able to spend forenoon and afternoon f three, four, and five days a week away from their practice Many of us now struggling to build up again the practic we sacrificed have to compete on even, and less than eve terms with these men, while many of them stayed at hon and obtained the job when we were on active service.

I am, Sir, yours faithfully,

Jan. 28th, 1920. EX-R.A.M.C.

*** We hope that there are not many practitioner whether on or off the pensions boards, who conduct in vidually such panel practices.—ED. L.

Communications, Letters, &c., to the Editor hav been received from—

A.—Dr. E. L. Ash, Lond.; Dr. F. W. Andrewes, Lond.; American Dietetic Association, New Haven.

B.—British Guiana, Surgeon-General of, Demerara; Dr. W. L. Brown, Lond.; Mr. H. W. Bayly, Lond.; Mr. L. E. Barrington-Ward, Lond.; Dr. Barnardo's Homes, Lond., Sec. of; Mrs. Boyd, Lond.; Mrs. H. Benn, Lond.; Dr. G. Blacker, Lond.; Dr. F. Brabander, Paris.

C.—Dr. C. W. Cunnington, Lond.; Surg.-Lieut.-Commdr. H. St. C. Colson, R.N.; Dr. A. Castellani, Lond.; Dr. C. Coombs, Bristol; Continental Surgical Supplies Co., Lond.; A Camberley Resident; Miss G. Cowlin, Lond.; Dr. A. F. Cameron, Dartford; Mr. V. Z. Cope, Lond.; Dr. R. G. Canti, Lond.; Dr. H. P. Cholmeley, Forest Row.

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G.—Great Northern Central Hospital, Lond., Sec. of; Mr. H. T. Gray, Lond.; Sir A. E. Garrod, Lond.

H.—Dr. J. Haddon, Denholm; H. M. R.; Dr. M. L. Hine, Lond.; Harvard University Press, Cambridge, Mass.; Dr. O. Holden, Swansea.

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K.—Dr. B. Kingsford, Lond.; The King's Services Choir, Lond., Chairman of; Dr. R. Knox, Lond.; Dr. D. Keilin, Cambridge.

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N.—National Physical Labor tory, Teddington; Nation Union of Trained Nurses, Lon National Anæsthesia Resear Society, Columbia; Nation Committee for Mental Hygien New York; National Safe Council, Chicago.

O.—Dr. T. H. Oliver, Mancheste

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Y.—Mr. M. Yearsley, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET
423, Strand, W.C.

Hunterian Oration

ON

BLOOD VESSELS AND PRESSURE.

Delivered before the Hunterian Society on Jan. 14th, 1920,

BY LEONARD HILL, M.B. LOND., F.R.S.,
DIRECTOR, DEPARTMENT OF APPLIED PHYSIOLOGY, MEDICAL RESEARCH COMMITTEE.

GENTLEMEN,—Professor Arthur Keith, in his admirable address to this Society, relieved me of part of my proposed exposition by setting forth the views held by Hunter concerning the arteries, their contractility and living sensitive nature, and the call of the living tissues for blood which determines the circulation.. I therefore propose to lay before you this evening those principles of the circulation which appear essential to me, and which are based on evidence published in a number of papers hitherto not summarised. Before so doing I venture to assume the powers of Prospero and summon the spirit of Hunter from the vasty deep to be present with us this evening and critically consider a line of research which, so far as conducted in the Hunterian method of inquiry, is homage to the master.

INQUIRY INTO THE PRINCIPLES OF THE CEREBRAL CIRCULATION.

This research began a quarter of a century ago with an inquiry into the principles of the cerebral circulation.

I start with the measurement of the pressure of the brain against the skull wall, as shown in Fig. 1. *a* is a tube closed by a thin rubber membrane screwed into a trephine hole, *b* an air-bubble index, *d* a pressure bottle, *c* a manometer. The bulging brain presses the index out, it is restored to zero position by raising the pressure bottle, and the manometer records the required pressure. Trephining the lamina of the atlas, the same method gave me the pressure of the cerebro-spinal fluid. Trephining the torcular herophili, a bony cavity, in the dog, the cerebral venous pressure was recorded. All three pressures were the same, all three indices showed similar cardiac pulsations and respiratory oscillations of pressure. In the morphinised dog, lying horizontal, the pressures were about 5–10 mm. Hg. If the belly were squeezed the three pressures rose together and equally, if the heart stopped they fell together to zero. The three pressures could be made to rise together by raising the pressure in the aorta or in the venæ cavæ. They could be raised by allowing normal saline to run into the cerebro-spinal cavity at a somewhat greater pressure. They signify that part of the arterial pressure which, left over after the resistance is overcome, expands the brain—i.e., the capillary-venous pressure.

The expansion of the cerebral arteries at each pulse helps to expel blood out of the brain into the venous sinuses, the inspiratory rise of arterial pressure also usually expands the brain, but the expiratory rise of venous pressure, if this be increased, may expand it more, as may be seen in the fontanelle of the crying infant.

Suppose a foreign body is introduced into the skull—e.g., a brass tube, with rubber bag attached, screwed into a trephine hole, and the bag blown out by a measured amount of water (a depressed fracture or blood extravasated from a meningeal artery acts in the same way), the bag expresses blood out of the surrounding brain, and the pressure in the obstructed vessels rises to the arterial pressure. The foreign body, blood clot, or depressed bone does not continue to press, but merely occupies room. It has ensanguined a part of the brain, and so raised the circulatory pressure in ádjoining parts. Removal of the clot or bone is the remedy.

Consider next an inflamed area of the brain; the bacterial toxin causes dilation of the arteries, and there is increased imbibition of fluid by the poisoned tissues, the circulatory pressure rises then in the inflamed part, and the contiguous parts are pressed upon and partly exsanguined by the swollen part. So, too, in the case of a tumour; the fast-growing tumour with larger vessels swells at the expense of the other parts which become partly exsanguined.

Compensation for the room taken in the above ways may be brought about naturally by removal of tissue substance (by way of the circulation) out of the skull cavity. The skull is a rigid case, and its contents cannot vary so long as the skull is closed, but there may be more blood in the brain and less cerebro-spinal fluid or tissue substance, or on the other hand less blood and more fluid or tissue substance. The arteries may dilate and the tissue cells swell and confine the size of the veins so that there is a relatively rapid flow through the capillaries, or the arteries and cells may shrink and the veins dilate so that there is congestion with sluggish flow. But swelling and shrinking of tissue cells takes time. In the case of a rapid fall of circulatory pressure—i.e., if the heart be stopped—the brain does not shrink away from a glass window screwed into the skull, while it does shrink and empty of blood if air be admitted into the skull.

Given a normal level of arterial and vena cava pressures, the circulatory pressure in the brain is ruled by the swelling of the brain cells and by the secretion of cerebro-spinal fluid by the cells of the choroidal fringes, the degree of swelling and the volume of fluid together regulating the lumen of the veins, and so the capillary venous pressure. In a healthy state of activity the cerebral arteries are moderately expanded, the tissue cells in a normal state of turgescence, the veins narrow, the flow of blood and oxygenation good. In a state of collapse the opposite conditions hold, arterial pressure is low, veins congested, the blood flow slow, oxygenation poor. In the infant collapsed from diarrhœa the fontanelle is drawn in; it expands in the inverted position of the child.

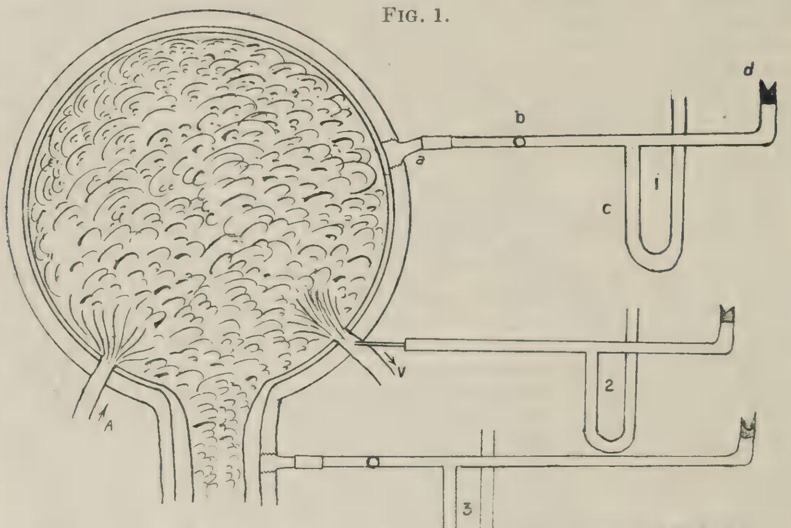
EFFECT OF GRAVITY ON THE CIRCULATION.

Consider the model Fig 2. *A* and *B* are the thin-walled rubber bags. The whole is affixed to a board, and the "heart" rhythmically pulsed and filled with water to a slight degree of distension while in the horizontal position. On placing the board vertical, *A* and the "heart" empty and *B* fills, owing to the hydrostatic pressure of the water and the expansile nature of the rubber bag. Give *A* a rigid case, make it non-collapsible, like the brain within the skull, the circulation in *A* will cease in the vertical position, if the "heart" does not fill, though *A* does not empty of blood. Squeeze *B* and the "heart" fills and the circulation begins again.

I took a grass-snake and fixed it lengthwise to a board, and exposed its heart and some inch of the vena cava below the heart. I put the board vertical with the head uppermost, the heart became empty the blood standing at a lower level in the vena cava. I lowered the board, the heart filled, and the circulation began again. I put the board vertical once more and squeezed the body upwards, the heart filled; again I let go, and the heart emptied. Next, keeping the board vertical, I sank it in a bath of water, the hydrostatic pressure of the water outside balanced that of the blood within—not fully, because the skin resists the water, but enough for the heart to fill. I then put the board vertical with the head downwards, the heart filled, but the pericardium resisted over-distension, acting as the leather case does to a football bladder. I incised the pericardium, and the heart bulged through the opening. I removed the pericardium wholly, and the heart swelled greatly and could scarcely empty itself.

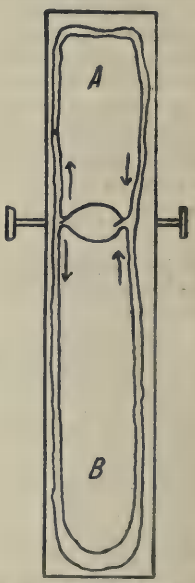
I repeated these experiments on eels. The pericardium protected the heart of the eel from the compressive action of its muscles, which otherwise produced over-distension when the animal struggled.

FIG. 1.



Schema of experiment designed to measure the pressure of the brain. At (1) the gauge is applied through a trephine hole in the skull-wall, at (2) through the lamina of the atlas, at (3) in the torcular herophili. A = artery, V = vein. (For other lettering see text).

FIG. 2.



Model to show the effect of gravity on the circulation.

I took a hutch rabbit, a big-bellied one used to over-feeding and an indolent life; I fixed it to a board with head and limbs outstretched, and placed it in the vertical position with head uppermost. After a few minutes the ears and lips began to blanch, and in spite of expiratory struggles which temporarily restored the circulation, the heart ceased to fill, the cerebral circulation failed, the pupil became insensitive to light, the cornea to touch, and the breathing stopped. On restoring the animal to the horizontal position consciousness returned again. If while in the vertical posture the belly were squeezed, consciousness was equally restored. So, too, if the animal were sunk in a bath. In the vertical posture the heart was found to be empty, the blood standing in the vena cava at a level below the heart, the vena cava drawn taut by the viscera hanging on it. On compressing the belly the blood could be watched filling the vena cava inferior and right side of the heart. Repeating the experiment on a wild rabbit with firm belly wall, nothing happened; the heart did not empty, the cerebral circulation continued.

In the cat or dog the carotid blood pressure is well maintained in the vertical position, but poisoning with chloroform, or division of the spinal cord in the upper thoracic region, brings about a great fall by weakening the vaso-motor control and the support of the abdominal muscles.

The invention by the late Harold Barnard and myself[1] of the armlet for blood-pressure measurement enabled me to measure the influence of gravity on the circulation in man. I found that in the standing posture the pressure in the posterior tibial artery was higher than in the brachial by the height of the column of blood between them. In normal recumbent young men they were the same. In the inverted position (head down) the pressure in the leg artery was lower than that in the arm artery by the height of the column of blood which separated them, but be it noted the pressure in the brachial was the same in all three postures. The circulatory mechanism is so contrived as to keep the blood pressure constant in the ascending aorta, while that in the legs varies with posture very widely. Engaged in this mechanism are afferent nerves, which supply the mouths of the venæ cavæ and the root of the aorta and reflexly control the frequency of the heart and the contraction of the arteries. The tone of the belly muscles and the respiratory pump is also influenced reflexly by the weight of the organs acting on afferent nerve endings and by the flow of blood through the nerve centres and oxygenation of these. In the case of a convalescent, from an exhausting disease, rising from bed for the first time the tone of the belly wall is lacking, the blood sinks down, the heart accelerates, the patient feels faint, or may actually faint. A faint is abolished by laying the man horizontal, or forcing him to bend and squeeze his belly against his thighs, or by strapping up his belly. Not only does the pulse quicken in the unfit, but the blood pressure falls when he stands up. There is a great difference between his systolic and diastolic pressures. His pulse, too, is greatly accelerated and may be made irregular by exercise. His vital capacity, also, as Martin Flack has shown in the case of unfit pilots, is greatly reduced, and he cannot hold his breath for long or blow hard against a column of mercury.

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[1] An invention made independently and at the same time as that of Riva Rocci.

THE EFFECT OF EXERCISE ON CIRCULATION.

Those suffering from cardio-vascular debility, people convalescing from illness, or falling ill, those exhausted by war or flight-strain, alike fail in these tests. Flack has developed for flight cadets exercises designed to strengthen the expiratory power of the abdominal muscles, and made a most valuable application of the lessons learned from Fig. 3, taken from my second paper on Gravity and the Circulation, in which Barnard coöperated. It shows the brain enclosed in a rigid wall, the thoracic organs in a wall which enlarges by the action of the diaphragm in inspiration and so sucks in both air and blood into the thorax, and contracts in expiration, and so squeezes out of the thorax both air and blood. The belly organs are compressed by the descent of the diaphragm and enclosed in a muscular wall, which can be relaxed so as to admit food and drink and more blood, or contracted so as to expel the fæces or urine or drive out blood. The heart is shown enclosed in a pericardium,[1] which prevents its over-expansion, so that the contracting belly wall can squeeze blood through the right heart into the lungs, the entrance into and the escape of air out of the lungs being suitably controlled by the glottis. The diagram also shows the limbs encased in skin, so that every movement of the muscles and change of posture drives blood from capillaries and veins past the valves in the veins towards the heart. Clench the fist and one sees the blanching of the vessels on the back of the hand; lower the hand, they congest; raise it, they blanch. Hunter pointed out that dependance of a part and immobility produce œdema and delay healing by impeding the circulation, and that congestion produced by gravitation increases the pain felt in inflamed joints. The vessels in the body are arranged so that every muscular movement drives capillary and venous blood onwards. The peristalsis of the intestine not only moves to and fro, or sends onward, the chyme, but expels the blood out of the capillaries and the chyle out of the lacteals. The rhythmic contraction of the spleen converts this into a blood pump; similarly other organs are either squeezed by their own muscular coat, or squeezed as the liver is squeezed between the diaphragm and the muscles of the abdominal wall. In walking, still more in running, the deep breathing and movement of the muscles rhythmically express blood from the organs and venous reservoirs of the belly into the right heart, and through the right heart into the lungs, which are widely expanded in inspiration to receive it. The respiratory pump massages the belly organs and effectively aids the circulation. Vigorous exercise ventilates the lung, five, even ten times more, and sends the blood swirling in well-oxygenated streams through all parts, uses up the food that is eaten for the production of energy, and so ensures a clean bowel, good appetite, and well-nourished organs. The cooling power of the wind stimulates us to exercise in the open air to keep warm, and greatly enhances the value of the exercise.

Exercise in the open air and sea-bathing afford then the successful treatment for cardio-vascular debility. The sedentary life of the scholar, the sempstress, or the light hand worker in factories must be balanced by open-air exercise, facilites for which can only be secured by the rebuilding of tenement dwellings as garden cities, and the establishment of playing-fields and gardens. Be it noted that the gardens also afford the means of cultivating green vegetables and thus the securing of essential vitamines which the tenement dweller lacks.

THE RESILIENCE OF ARTERIES.

The arterial pressure in the femoral artery in cases of aortic regurgitation is much higher —e.g., 100 mm. Hg or so—than in the brachial artery with the patient lying horizontal. There is, too, a wide difference between systolic and diastolic pressures in these cases. I found that the pressure might be made higher in the femoral artery in healthy young men by making them run up and down stairs several times, so inducing a forcible heart beat; also that the difference in cases of aortic incompetence might be made less or even abolished by placing the buttocks in a bath of hot water. In healthy resting young men a difference might be detected between the right and left arm after their placing one in hot and the other in iced water. The iced upper arm might give a lower reading than the heated forearm.

If the wall of an artery is contracted and more rigid it conducts the crest of the pulse-wave much better than if the wall is soft and slack. In the latter case the crest of the pulse-wave spends its force in distending the wall of the artery.

On a model constructed by Russell Wells it was shown that the thinner a rubber tube the more it is stretched by the pulse-wave, the more is its resilience brought into action, and the less well is the crest of the systolic wave conducted, and the nearer together are the diastolic and systolic pressures at the peripheral end. A pump systolic pressure of 160 and diastolic 40 mm. Hg. gave, in a rubber tube 0·8 mm. thick, a sphygmogram showing great amplitude, sharp rise and fall, well-marked dicrotic waves; in a tube 0·2 mm. thick a slow rise, flat top, slow fall, slight dicrotic waves. In accordance with the contraction and rigidity of the arterial wall, the same heart beat delivers to the capillary-sized vessels hammer-like percussion waves, beating them open, or a more continuous but lower pressure of blood. In renal disease I think it is the cells, strangled by inflammatory processes, which call for the hammer stroke. Hence the high systolic pressure. The danger of cerebral hæmorrhage arises not from the high pressure, but from vascular degeneration set up by the abnormal metabolic conditions.

THE MEASUREMENT OF BLOOD PRESSURE.

I now ask you to consider what happens when, in measuring blood pressure, the arm is compressed by the armlet. On raising the pressure the veins and capillaries in the part of the arm confined by the armlet are first compressed and the flow obstructed, the pressure rising in these vessels up to arterial pressure; the main artery is thus kept full and cannot be flattened until the pressure in the other vessels is over-topped. When the diastolic pressure is just over-topped the artery is flattened in diastole and swings into full round shape in systole, the pulse then giving its maximal excursion. The auditory method also gives an index, for when the pressure is raised above, and then allowed to fall just below what is required to flatten the artery in diastole, the noise (heard over the artery below the armlet) suddenly becomes quiet. Be it noted the maximal oscillation is just as true an indication of diastolic pressure as the auditory change of sound.

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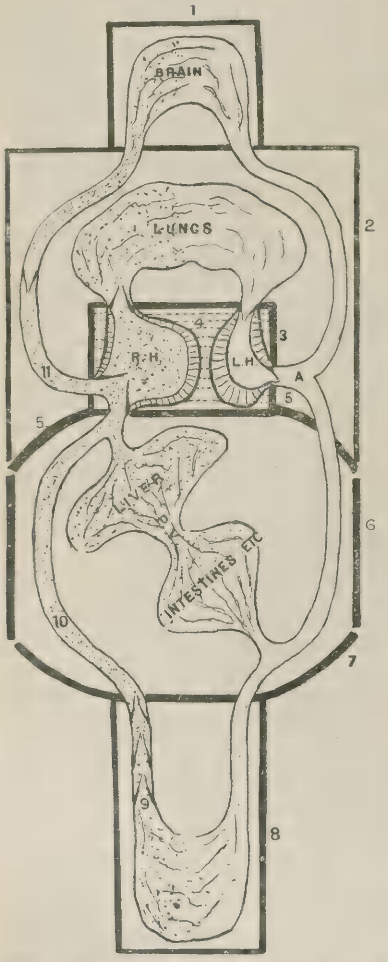
[1] The diagram shows shows how a pericardial effusion obstructs the filling of the heart.

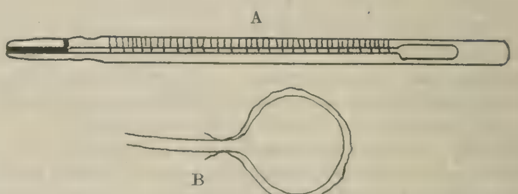
When the bag of my pocket sphygmomanometer (Fig. 4) is pressed upon the wrist over the radial it acts in the same way as the armlet, and the gauge gives the same readings of systolic pressure as the armlet sphygmomanometer. But in the case of an aberrant radial observed by James McQueen, as also in the dorsalis pedis (or temporal) artery, where it lies upon bone unsupported by tissues full of veins and capillaries, the bag gave a far lower systolic pressure. The pressure in the carotid artery in the dog measured on one side with the bag was the same as that on the other side measured directly by means of a cannula and a manometer. When, however, the carotid was exposed and placed on a flat piece of wood a far lower pressure of the bag sufficed to stop the pulse. The conclusion was reached that an artery, unsupported during compression by surrounding tissue vessels, is easily distorted from the round into a chink-like shape, and then the pulse-wave expends its force on dilating the artery above the chink, and does not pass through. This is why an arm with tissue vessels constricted by ice gives a lower reading than one with tissue vessels dilated by hot water.[2]

FIG. 3.



Schema of the circulation of the blood in man in the erect position. 1, Skull. 2, Thoracic wall. 3, Fibrous pericardium. 4, Pericardial effusion. 5, Diaphragm. 6, Oblique and transverse muscles. 7, Levator ani. 8, Skin and muscles of the legs. 9, Femoral vein and valves. 10, Inferior vena cava. 11, Superior vena cava. R.H., Right heart. L.H., Left heart. A., Aorta. P.V., Portal vein.

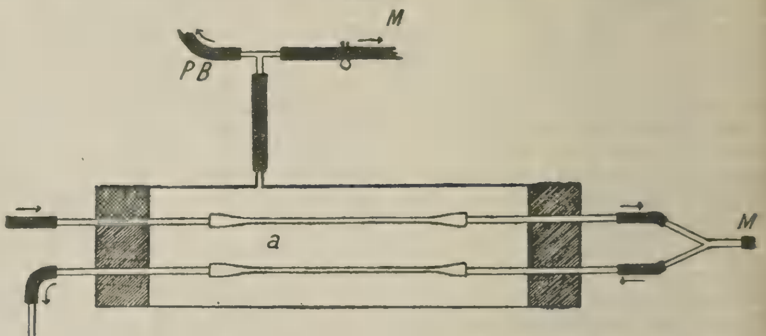
FIG. 4.



The author's pocket sphygmomanometer: (A) is the gauge, (B) the bag to press over the radial artery. (Made by Hicks, 8, Hatton Garden, E.C.)

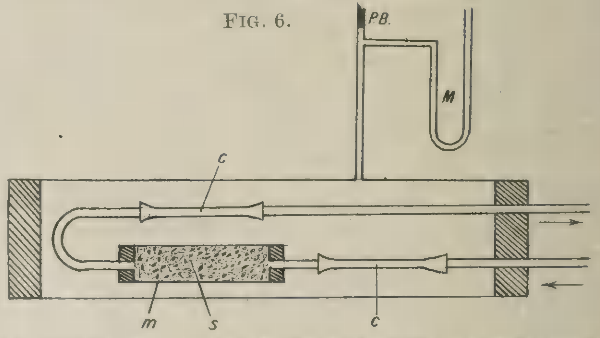
The facts may be largely demonstrated by a model. Fig. 5 shows a chamber containing two pieces of human carotid; water circulates through these with a pulsatile flow. Owing to frictional resistance there is a lower pressure in the distal piece. On compression this flattens first. When a single piece of artery is used the pressure required to distort its distal end and stop the pulse-wave passing is much lower than the pressure required to stop water trickling through.

FIG. 5.



Chamber containing two pieces of human carotid artery (*a*) through which water is made to circulate. Owing to friction the pressure is lower in the distal piece. M = manometer. PB = pressure bottle.

FIG. 6.



The same chamber as in Fig. 5, containing pieces of human carotid artery (*c*), with the addition of a thin rubber bag enclosed in muslin (*m*) and filled with chopped rubber sponge (*s*) to simulate the tissue capillaries.

Arranged as in Fig. 6, the flow is first through the artery, then through tissue capillaries, then through the vein. The tissue capillaries are formed of chopped rubber sponge enclosed in a thin rubber bag, and this in its turn enclosed in muslin to limit its expansion. The vein first flattens on compression and the tissue capillaries shrink (the pulsing artery expels fluid from these). The system then becomes more rigid, the pressure rising to arterial pressure all through it; next the artery flattens in diastole and finally in systole.

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[2] Martin Flack and James McQueen coöperated in these researches.

MEASUREMENT OF CAPILLARY PRESSURE.

Roy and Graham Brown, observing under the microscope the capillary vessels in the mesentery, by means of a transparent bag squeezed them against a glass slide. It required very little pressure to begin to affect the flow. To stop it the pressure in the arterioles must be overcome. The capillaries do not alter in width when the circulation is stopped; they are not elastic tubes merely controlled by the arterial pressure. On the other hand, they may spontaneously alter in width under the influence of irritation or tissue activity.

The normal capillary pressure cannot be measured in man by the method of blanching the skin (Fig. 7): firstly, because the skin resists distortion; secondly, because the observation requires immobilisation of the part and the capillary-venous circulation is affected by every muscular movement and change of posture; thirdly, blanching signifies the shutting up of arterioles, not capillaries. I have endeavoured to measure the capillary pressure by inserting a hollow needle under the skin connected with a tube containing sterile water and an air-bubble index, and finding what pressure it takes to drive the index inwards. The pain produced by the entering droplet of water is also an index. Using this method one finds a very slight pressure suffices either for the arm or the leg, not only in the horizontal position but in the vertical posture. The capillaries do not share then in the hydrostatic difference of pressure shown by the arteries. If we hang down a hand and keep it immobile we soon cannot bear the ache produced by the capillaries congesting under the influence of gravity; naturally we shift the position of the part and empty the capillaries on into the veins. When an armlet is put round the upper arm and the pressure raised and kept just below systolic pressure the veins are obstructed, the capillaries fill, the hand swells, and the ache grows. If one then measures the pressure required to flatten the veins on the forearm, one finds the pressure has risen up to what it is in the armlet. (A proof that the armlet method reads the systolic pressure truly.) When the pressure in the main veins has risen considerably, it is still possible to express blood out of the capillaries and veins on the back of the hand by clenching the fist. It is generally assumed that if arterial and venous pressure are both raised capillary pressure must be raised, but we see by the action of the muscles and the valves in the veins it is possible to have a high pressure in both arteries and veins of a part, and no pressure in the capillaries until they once more fill.

FIG. 7.

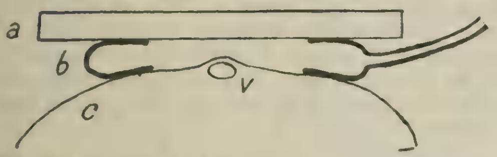
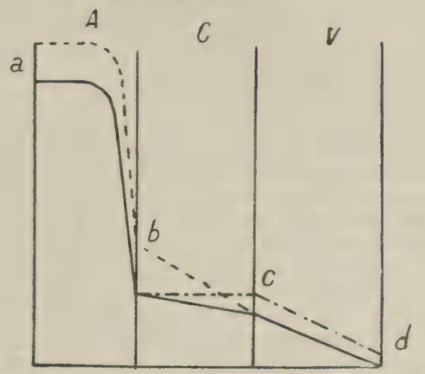


Diagram of measurement of normal venous and capillary pressure by the method of blanching the skin. *a*, Glass slide. *b*, Rubber bag with a hole punched through the middle. *c*, Arm. *v*, Vein.

The vascular system is then not a continuous one like the models constructed to represent it. When the heart is stopped there is no uniform residual pressure; on the contrary, blood sinks into the lower parts, and upper parts empty and collapse. When the arterial pressure is raised by the constriction of arteries the rise is due wholly to increase of frictional resistance therein, none of it is due to reduction in the total capacity of the vascular system. We know that at any one time normally a vast number of the capillaries are empty. Krogh has recently brought fresh proof that this is so. Cold shrinks up the cutaneous capillaries, heat fills them; a vast difference pertains between the two conditions. The respiratory movements, the intestinal contractions, the movements of the skeletal muscles are all designed to squeeze the blood from the capillaries and keep a very low pressure within them.

FIG. 8.



Graph unsupported by evidence but given in text-books as showing the fall in blood pressure from the artery (*A*), through the capillary (*C*), to the vein (*V*), and the effect of raising arterial pressure (interrupted line) and venous pressure (dot and dash line).

The regulation of the circulation (1) by the cardiac nerves afferent and efferent (acceleratory and inhibitory); (2) by the vaso-motor nerves (constrictor and dilator); (3) by the compressive or expansive action of the voluntary, respiratory, and visceral muscles; (4) by change of posture and action of gravity is designed so as to keep steady the composition of the blood and fluid bathing the tissues. Thus during exercise the circulation is increased proportionately with the consumption of oxygen and production of carbon dioxide, and breathlessness in heart cases is the test of circulatory fitness and the capacity to take exercise.

The study of the immobile animal and of models leads away from the true conception of the mechanism. The circulation could not continue for a moment if all the blood-vessels, arteries, veins, and capillaries were freed from the support of the surrounding tissues and membranes which confine the tissues. These form a support to the vessels which is of no less importance than their own wall. The body requires to be kept hard in a lean and wiry state, with no excess of fat or tissue fluid, and no wind in the guts—a state in which the tissues, muscular and glandular, confined within their membranæ propriæ and capsules are maintained in turgescence, thus supporting the blood-vessels, whose coats have good tone, the whole confined in a firm cool skin.

THE CAPILLARY PRESSURE AND THE PATHOLOGY OF ŒDEMA.

Although there is no evidence of a higher pressure in the capillaries than in the tissue fluids, this is generally assumed, and it is supposed that filtration takes place from the capillaries—e.g., in the case of the renal glomeruli, formation of lymph, aqueous fluid, &c.—and that œdema is produced by increased capillary pressure and filtration. My view is that the tissue cells and fluid enclosed by capsules and skin exactly counterbalance any pressure there is in the capillaries, and that the cellular force of imbibition draws fluid out of the capillaries.

C. Bolton has shown that after obstructing the flow in the vena cava inferior, by narrowing it down by three-fifths, the venous pressure is only temporarily and slightly raised, and that œdema occurs after the venous pressure has returned to the normal level. Œdema is not due to filtration, but to obstruction of the flow of blood, leading to want of oxygen and metabolic changes in the cells, which result in increased imbibition. I found in a case of hydrocephalus that the fluid pressure equalled about 20 cm. of water. On raising the head from the pillow the pressure did not fall owing to gravity, but rose owing to my hands squeezing the head—a bag of fluid. It is not conceivable that the pial vessels could support any part of this pressure; the capillary venous pressure must have risen pari passu. On drawing off the fluid the pressure sank to atmospheric pressure and the soft wall of the skull by its weight sagged in. So it remained for hours, until, as the fluid was secreted, the pressure gradually returned. In a case of œdema of the leg I found the pressure equalled about 50 cm. of water, the patient was sitting up in bed; here, again, the pressure did not fall, but rose on lifting the leg up owing to squeezing of the leg by the hands. The capillary-venous pressure must have been the same as the fluid pressure.

We must bear in mind that the capillaries are evolved out of intracellular spaces, such as are found, for example, in a Turbellarian worm, in which a sort of circulation is kept up by movements of the animal's body. Pulsatile channels were next added, and finally hearts.

I have recently tried to get some measure of the normal capillary pressure by microscopic examination of the frog's web, mesentery, and tongue, after stopping the arterial flow (1) by ligature, (2) by excising the heart, (3) by cutting off the part—in this case the foot. The capillary circulation continues for several seconds, gradually becoming slower and finally stopping in most of the vessels. On exploring the field, however, there may be found one or more vessels—e.g., an arteriole with connecting capillaries and a venule—in which the flow continues for some minutes at a speed which is no less than the normal speed in the capillaries. The flow after a time may reverse. A slight movement of the limb may hasten the flow, reverse it, or may start a flow. Thus the replacing the frog's web under the microscope, 40 minutes after cutting off the leg, started a flow which lasted for some minutes. It seems clear to me, then, that the very slightest difference of pressure suffices to maintain the capillary flow. The fact that the flow reverses is against its being caused by any contraction of the larger arteries. So, too, is the fact that a slight movement of the amputated leg hastens the flow in the web of the foot. A search in the Royal College of Surgeons Library revealed that a French physiologist, Guillot, in 1823 made similar observations and found the heat of a candle accelerated the flow. I find a momentary exposure of the frog's web to the heat of a fire both starts and accelerates the flow. I would call to mind here the very remarkable flow in the so-called veins of the slime fungus or myxomycetes, which rhythmically reverses—first a rushing stream of granules towards the growing edge, then a stream away from the edge. The capillary flow seen in the excised foot of the frog is due, I think, either to evaporation or to blood sinking down into some dependent, or more flaccid, part.

The contraction and expansion of capillary-sized vessels has been demonstrated by many; recently by T. Lewis and his co-workers in the skin, and in the frog by Krogh. On irritation of a part local hyperæmia is brought about through the afferent nerve fibres—by "axon reflex." There is evidence that the metabolic state of tissue cells governs the flow, and I would urge that it is not the capillary wall but the swelling or shrinking of the tissue cells, and in particular of muscle, voluntary and involuntary, which controls the width of the capillaries.

The body may lose 7 lb. of water by sweating during hard exercise in hot weather. The tissues shrink and keep up the supply of water in the blood, which scarcely becomes more concentrated; the muscles must then increase their tone so that the skin and membranes confine the shrunken tissues and keep up the hardness of a fit person.

THE INFLUENCE OF MEMBRANÆ PROPRIÆ AND OTHER MEMBRANES ON THE CIRCULATION AND SECRETORY PRESSURE.

In the case of the salivary gland there is a strong membrana propria which confines the secreting cells of each alveolus, comparable to the sarcolemma of a muscle fibre or neurilemma of a nerve fibre. It limits the expansion of the alveolus, acting like the leather case of a football, the pericardium of the heart, or the connective tissue coat of a blood-vessel. Each lobule, each lobe, and the whole gland is surrounded with membranes limiting expansion. When the secretion is obstructed the alveoli swell, the lobules and lobes swell, and the whole gland swells until limited by the membranes, and the veins within the gland are compressed and diminished in volume, while the arteries dilate and the circulatory pressure is thus raised until arteries, capillaries, and veins approximate to a rigid system at arterial pressure with a fast rate of flow. As the membranæ propriæ, &c., limit the expansion of the alveoli, the veins are not shut up even when the duct is obstructed, and the secretory pressure rises much above the arterial pressure. Flack and I observed in one case that with 240 mm. Hg in the salivary duct and 130 mm. Hg in the carotid artery 27 drops flowed out of the salivary vein in 20 seconds. In the sweat glands the structure is similar to that in the salivary glands, and the same high secretory pressure may be produced.

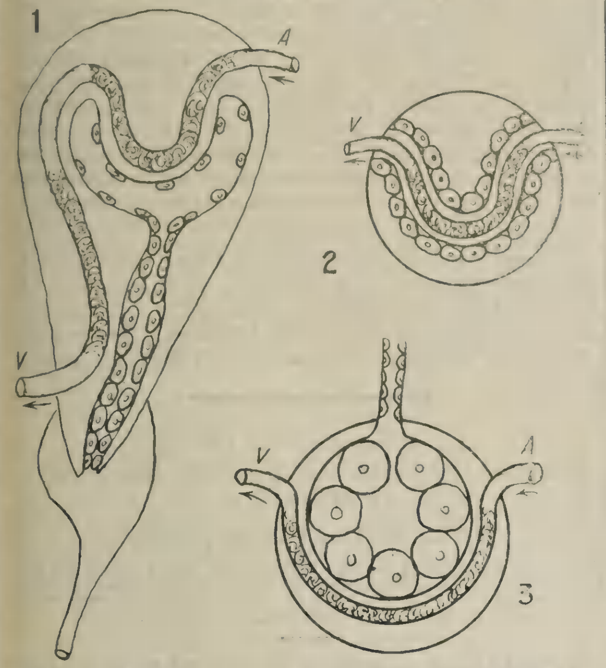
It is a fundamental principle in the construction of the body that the cells are enclosed by membranes which permit imbibition of fluid but check swelling, thus enabling them to do work and at the same time receive an ample supply of blood.

In the kidney there are membranæ propriæ enclosing the secreting cells of both renal capsules and tubules. The secretory pressure, however, does not rise up to the arterial pressure (133 mm. Hg carotid artery and 88 mm. Hg in the obstructed ureter—Starling). In the case of the kidney the bladder acts as a reservoir and the abdominal wall keeps off external pressure.

The structure of the kidney does not support the doctrine that fluid is filtered from the blood into the capsule of the glomeruli by the blood pressure. The glomerulus is a lobule of a gland secreting within a capsule. In worms the glomeruli hang in a blood space; filtration pressure cannot exist.

Obstruction of the ureter does not at first diminish, but increases the secretion of urine (Cushny). The whole gland then becomes tense and the blood flow rapid through a system of vessels approximating to a rigid system. Each pulse expels blood out of the veins and urine out of the collecting tubules.

FIG. 9.



Schematic figure of secreting cells, membrana propria, capillaries and capsule of: 1. Kidney. 2. Eye. 3. Salivary gland. A = artery. V = vein. From Flack and Hill's Text-book of Physiology (Arnold).

INTRA-OCULAR PRESSURE.

Now let us turn to some observations made on the eye, in which Flack coöperated. The pressure of the aqueous fluid was measured by a hollow needle thrust through the cornea connected with a tube containing an air-bubble index, and this in its turn with a pressure bottle and manometer. The pressure (20 mm. Hg or so) varies, as is well known, with the arterial pressure. That the pressure of the aqueous balances the capillary venous pressure in the iris is shown by the fact that on letting the fluid escape the iris bulges forward and may touch the cornea, and on compressing the abdomen the vessels of the iris burst; and blood comes into the anterior chamber. No such bulging or hæmorrhage can be brought about by squeezing the belly when the eye is intact.

One of the venæ vorticæ was opened and the venous outflow observed, while the pressure in the eyeball was raised by forcing normal saline into the aqueous chamber; the outflow of the venous blood did not cease until the pressure in the carotid artery was just overtopped, showing that the capillary venous pressure rises together and equally with the fluid pressure within the eyeball, just as within the cerebro-spinal cavity.

The contents of the eyeball are confined by the corneal membrane of Descemet and the glassy membrane of the choroid, supported by the cornea and sclera, and the intra-ocular pressure is ruled by the secretory action of the cells of the ciliary processes. If the cells secrete more aqueous there is less room for blood, the veins narrow, and the capillary-venous pressure rises. If the arterial pressure increase the capillary-venous pressure this increase is instantly transmitted to and balanced by the aqueous. The pulse causes a rhythmic expansion and shrinkage which keeps up the flow of blood and fluid.

Accommodation is established by a perfectly balanced transference of fluid from the front to the circumferential region of the lens; this transference, brought about by the ciliary muscle, causing the lens to become more convex.

The spaces of Fontana are covered by a layer of endothelium less than 1μ thick, and supported as this is by an equality of pressure, aqueous on one side, venous blood on the other, the normal absorption of aqueous takes place.[3] In the bloodless eye of the dead animal the spaces are converted into filtering structures on forcing fluid into the aqueous chamber. So, in the dead kidney, on driving water through the renal vessels it filters out through the dead collecting tubules, carrying with it degeneration products of the cells.

Abrading the skin, opening the eyeball or skull cavity in the living animal, removes in each case the balancing counter-pressure, and allows plasma to escape through the capillaries which are no longer supported. The cells and capillary wall, too, are damaged by exposure, and this enhances the outflow of fluid.

The Effect of Inflammation on the Circulation.

In acute glaucoma there are disordered metabolism and increased imbibition, while the pathways of absorption may be obstructed, for example, by dilatation of the iris. The increase of fluid lessens the volume of the veins and so raises intra-ocular tension. The surgeon's knife relieves glaucoma by allowing the outflow of fluid and inflow of blood, with its immunising properties, as in any other inflamed part.

The tissue cells in the skin are confined by frameworks of connective tissue which limit expansion and act as the membranæ propriæ of a gland. In states of inflammation the tissue cells swell, the arteries dilate and the pressure rises as the swollen tissues press upon and narrow the veins. The vessels approximate to a rigid system, hence the high tension and pulsatile-throb of the inflamed part. The flow from the veins witnessed in the old days of bleeding was two or three times greater in an inflamed arm. Finally stasis may be produced by exudation of plasma from the damaged capillaries. The surgeon's knife by cutting, the hot fomentation by softening, relieve tension and allow increased flow of blood and lymph to the part.

SOME REMARKS ON SHOCK.

I finally ask you to consider the condition of shock which may arise from intense nervous excitation; from absorption into the blood of toxic products probably of protein origin arising from traumatised tissues; from absorption of bacterial toxins and certain other poisons; from exposure to excessive heat; from hæmorrhage; from want of oxygen in the air breathed. When traumatic shock is well established no relief can be given by any measures taken to confine the capillaries—e.g., by bandaging the limbs. The blood is not only pooled within them, but fluid has transuded out.

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[3] Ehrlich's study of aqueous secretion by the injection of fluorescein supports these views.

Crile upheld the view that traumatic shock is due to exhaustion of brain cells by intense sensory excitation, and that such could be prevented by local anæsthesia which blocked the sensory nerves. By suitable anastomoses of blood-vessels he cross-circulated two dogs, so that the blood of each intermingled; only the animal submitted to traumatism showed the characteristic changes in the brain cells. These were produced then not by products of traumatism in the blood but by sensory excitation. Severe traumatism of the brain itself did not produce the changes in the brain cells. No shock was produced in spinal animals by traumatism of the body below the point of section of the spinal cord. Similar changes in the brain cells were produced by fear, exhaustion through excessive activity, prevention of sleep, great loss of blood.

The sub-committee of the Medical Research Committee on Shock has brought forward evidence which favours the view that shock can be brought about by absorption of a substance or substances from killed and dying tissues; thus amputation of a limb may relieve shock by putting an end to such absorption. So, too, in the case of extensive burns of the skin, shock is regarded as resulting from absorption of products of protein decomposition. Local trauma—a burn or the wheal of a cane—causes capillary flushing and œdema provoked by damaged tissue products. Noteworthy is the observation by Dale that an etherised cat can be put into the condition of shock by an injection of histamine, but not the normal cat nor one anæsthetised with nitrous oxide and oxygen. On the one hand there is the cumulative effect of two poisons, on the other the protective effect of oxygen. In the state of shock produced by the injection of histamine in the etherised cat the whole of the potentially available capillary channels become patent, the blood percolates into the network of channels as a sponge. 50 to 60 per cent. of the plasma may pass out. A constriction of the arterioles holds up the arterial pressure, but the venæ cavæ are flaccid, half empty, the portal vein flat, the filling of the heart in diastole wanes. The liver and spleen are moderately pale, but the bowels show a diffuse dusky congestion.

Shock due to Increased Imbibition.

It seems to me that shock is due to metabolic products opening up all the capillaries and increasing imbibition in all the cells of the body at the same time; such products can be evoked in the cells by violent nervous stimulation, by want of oxygen or by toxic substances in the blood. Waller finds in people of nervous temperament that the electrical resistance of the current passing between the back and palm of the hand is lowered by emotional changes of consciousness. This is probably an index of the change brought about in the imbibition forces of the cell by nervous shock. The concentration of ions on the cellular membranes and imbibition of fluid by the cells are so changed in shock, that a generalised passage of fluid into extracellular spaces and flaccidity result, with pooling of the blood in dependent parts; the consequent failure of the circulation and oxygen supply intensifies the evil.

The quick breathing set up in shock by cerebral anæmia and want of oxygen washes CO_2 out of such of the blood as continues to circulate and increases the alkalinity of the tissues which receive it—e.g., heart and brain—for the alkali, which was bound to CO_2 in the blood, is taken up by the tissues when set free. There is, then, an alkalosis and not an acidosis in shock, and the injection of sodium bicarbonate is contra-indicated. (B. Moore.) The alkalosis lessens the sensitivity of the respiratory centre, and thus air containing 2 per cent. of CO_2 acts as a stimulant and secures better oxygenation of the blood.

Injection of Bayliss's gum saline is required to fill up the blood-vessels; the colloid gum retains the necessary salts within the blood-vessels. At the same time the patient requires oxygen inhalation, which can be given most suitably in an oxygen chamber. I have constructed, and am now testing, a light, collapsible, and transportable oxygen chamber, large enough to take nurse and patient, to be used in conjunction with liquid oxygen containers, and ventilated so that no re-circulation or purification of the air is required.

CONCLUSION.

In conclusion I ask you to consider not increased capillary pressure and filtration as the causes of œdema, but stagnation of flow with consequent oxygen want and increased imbibition. The result of such a shifting of ideas will, I believe, prove fruitful.

THE RESULTS OF
PROTECTIVE INOCULATION AGAINST INFLUENZA
IN THE ARMY AT HOME, 1918–19.

BY MAJOR-GENERAL SIR WILLIAM B. LEISHMAN,
K.C.M.G., C.B., K.H.P., M.B., F.R.C.P., F.R.S.,
DIRECTOR OF PATHOLOGY, WAR OFFICE.

THE LANCET published on Oct. 26th, 1918, the proceedings of a Conference of bacteriologists, summoned by the Director-General of the Army Medical Service to consider the advisability of employing in the army a preventive vaccine against influenza. This Conference, of which I had the honour to be chairman, agreed that such a vaccine might be expected to be of service, and made recommendations as to its constitution and use. The vaccine recommended was accordingly prepared at the Royal Army Medical College, and, in certain commands, used on a considerable scale.

In view of the opinion, widely expressed in both medical and lay journals, that we are threatened with another epidemic wave of influenza, it is felt that the results obtained in the army commands at home last winter with the vaccine in question should be made known, not only because it is proposed to advocate its employment again in the army, if we should be so unfortunate as to find ourselves in the presence of a serious recrudescence of the disease, but also because the modified vaccine now in army use has, I understand, been adopted by the Ministry of Health for employment in the civil community.

The Original Formula.

The vaccine formula recommended by the Conference mentioned above was as follows:—

B. influenzæ	60 millions	in 1 c.cm.
Streptococci	80 ,,	
Pneumococci	200 ,,	

Several strains and types of each organism were used, all comparatively freshly isolated from cases of the disease. Two doses were recommended, the first 0·5 c.cm., and the second, given after 10 days' interval, 1 c.cm. The statistical results recorded below apply solely to the vaccine prepared in accordance with the above formula.

As was naturally to be expected, in view of the divergent views held as to the bacteriology of the epidemic, the proposed constitution of the vaccine was subjected to a certain amount of criticism in subsequent issues of the medical press, and the points made in these communications, many of them most valuable and helpful, were duly noted. One of the principal criticisms was concerned with the dosage which had been agreed on as appropriate for the *B. influenzæ* moiety of the vaccine, it being urged that a considerably larger dose of this might be given with safety and with the prospect of an enhanced degree of immunity. In view of this, and also of the fact that, as the bacteriological experience of the epidemic extended, the ætiological rôle of Pfeiffer's bacillus came more and more into prominence, I consulted my colleagues of the original Conference afresh upon this point and found them all in agreement with an increased dose of Pfeiffer's bacillus, which I proposed should be raised from 60 millions to 400 millions in 1 c.cm., it being understood that the strains employed should not have been so cultivated or so recently derived from cases as to be unduly toxic in their action.

The Revised Formula.

The formula of the vaccine as thus revised, and as now employed in the army, is therefore :—

B. influenzæ	400 millions	in 1 c.cm.
Streptococci	80 ,,	
Pneumococci	200 ,,	

From the first it was desired that every attempt should be made to secure clear statistical evidence of the results of the inoculations with the vaccine, and the necessary instructions to this effect were circulated by the War Office, returns in accordance with a simple *pro forma* being called for at regular intervals. In theory such clear evidence should have been easy to collect through the workings of official machinery; in practice it has been very difficult. Only those familiar with the strain thrown on the medical personnel by the addition of a severe and widespread epidemic to the already sufficiently arduous labours of those days of urgent and wholesale demobilisation can appreciate the difficulties of collecting and recording, in accurate detail, the information required for the returns. In spite of these difficulties, which, unfortunately, vitiated some of the returns, a considerable number of inoculations were carried out, and the records were received and analysed at the War Office.

Although it is very far from my intention to make any claim that the figures presented below are conclusive and free from all or even, in some cases, from possibly large fallacies, they serve, I think, to show at least the general trend of the inoculation results, and they have encouraged the hope that, with the larger dose of Pfeiffer's organism now employed, the vaccine, should it be needed, may prove a powerful reinforcement to other measures of protection.

Explanation of the Table.

A few words are called for in explanation of the table. The individual returns are shown under the name of the unit or the principal station in or near which the soldiers in question were located. The period covered by each return is shown in a separate column. The "strength" is the "average strength" of the unit or station; no other method was possible in view of the fluctuations of the population. The "inoculated" include those inoculated before the period in question, as well as those done during it, while the "uninoculated" are arrived at by deducting the inoculated from the average strength. The number of cases, complications, and deaths are, of course, not averages, but actual figures derived from the hospital records. The recording of pulmonary complications is probably lacking in uniformity, since different medical officers may have taken different views as to the

TABLE OF RESULTS OF INFLUENZA INOCULATIONS IN THE HOME COMMANDS, 1918–19.

—	Period covered by return.	Average strength during period. All ranks.	Number inoculated.		Number of cases of influenza during period.		Incidence of attack per 1000.		Number of cases in which pulmonary complications occurred.		Deaths.	
			1 dose only.	2 doses.	Inoc.	Non-Inoc.	Inoc.	Non-inoc.	Inoc.	Non-inoc.	Inoc.	Non-inoc.
Northern Command.												
1. Cramlington	31/12/18–28/2/19	1000	20	230	4	40	16·0	53·3	—	—	—	—
2. Wallsend	1/11/18–30/11/18	2149	774	591	1	5	0·7	6·4	—	1	—	1
3. Forest Hall	1/11/18–30/11/18	841	30	57	—	17	0	22·5	—	1	—	2
4. Seaton Deleval	1/11/18–30/11/18	1100	109	94	3	24	14·7	26·7	—	—	—	—
5. York	1/2/19–30/4/19	3100	1450	50	9	240	6·0	150·0	1	65	—	25
6. Newcastle	1/11/18–30/11/18	2794	324	41	1	62	3·0	25·5	1	16	—	5
7. Catterick	1/3/19–30/4/19	3352	78	395	4	76	8·4	26·3	—	—	—	—
8. Ripon (Reserve Centre)	1/4/19–30/4/19	1824	71	1174	1	3	0·8	5·1	—	—	—	—
9. Ripon	1/11/18–30/11/18	5246	363	408	4	81	5·1	18·0	1	12	1*	3
10. Alnwick	1/11/18–30/11/18	668	25	175	—	20	0	30·0	—	—	—	—
11. Bradford	1/11/18–30/11/18	643	31	170	—	5	0	11·3	—	—	—	—
12. Tyne Garrison	1/11/18–30/11/18	5270	1048	765	6	79	3·3	22·8	—	2	—	3
13. 3rd Cheshires	1/11/18–30/11/18	2180	222	412	12	48	19·0	31·0	—	25	—	5
14. West Hartlepool	1/11/18–30/11/18	670	127	60	—	30	0	62·0	—	5	—	2
15. Clipstone	1/11/18–30/11/18	11,509	525	1734	38	228	16·8	24·6	—	2	—	4
16. Bagthorpe	1/11/18–30/11/18	800	121	31	14	6	92·0	9·4	4	2	—	2
Eastern Command.												
17. Maidstone	9/11/18–30/4/19	4197	80	410	1	504	2·0	135·9	—	403	—	41
Irish Command.												
18. Finner	1/11/18–30/11/18	760	79	559	55	36	86·0	295·0	7	11	1	2
19. Charles Fort	1/11/18–30/11/18	1453	380	191	4	7	7·0	7·6	—	—	—	—
20. Cahir	1/11/18–30/11/18	526	38	318	4	16	11·2	94·1	—	—	—	—
21. Buttevant	1/11/18–30/11/18	835	126	428	—	7	0	24·8	—	1	—	3
Western Command.												
22. Prescot	1/11/18–30/11/18	4151	489	100	1	21	1·7	5·1	—	—	—	—
Scottish Command.												
23. 4th Seaforths	1/11/18–30/11/18	2326	500	—	—	102	0	55·0	—	2	—	—
London District.												
24. Battersea	1/11/18–30/4/19	1750	—	221	59	402	267·0	263·0	12	35	—	—
—	Totals ...	59,144	7010	8614	221	2059	—	—	26	583	2	98
			15,624									

* 1 dose only.

Summary of Table.

—	Strength.	Ratios per 1000.		
		Incidence of attack.	Incidence of pulmonary complications.	Deaths.
Inoculated	15,624	14·1	1·6	0·12
Non-inoculated ...	43,520	47·3	13·3	2·25

degree of bronchial or pulmonary involvement which should be taken as a complication.

The returns, all of which lie within the period between November, 1918, and April, 1919, comprise all those relating to this period which conformed to the following requirements:

1. That the vaccine used was that prepared at the Royal Army Medical College, according to the original formula.
2. That influenza should have been present in the unit during the period under review. In many stations where inoculation has been largely carried out there was a rapid cessation of the epidemic. Such returns would have swelled the total of the inoculations without throwing any light on their protective effects.
3. That only such returns are included as showed that at least one-tenth of the average strength had been inoculated, whether with one dose or two.

Information was asked for as to the interval occurring between inoculation and a subsequent attack of influenza, but the figures in response to this are too few to be worth analysing; it need only be said that they furnish little or no evidence of any increased susceptibility in the days immediately following inoculation, and that they throw no light of any value on the duration of the immunity conferred by the inoculations. The figures bearing on the latter point would, in any case, have been exposed to the fallacy that the epidemic was rapidly declining throughout the country, and that the inoculated population was drifting, with increasing rapidity, out of our control into civil life.

No bad effects were reported from the inoculations, and the reactions, in the overwhelming majority, were trivial or non-existent.

It will be noted from the table that nearly one-half of the inoculated had received only the first dose of the vaccine—i.e., one-third of the amount which we considered essential to effective protection. It is reasonable to assume that, had all received the full dosage, the protective results would have been still more evident. No statistical evidence bearing upon this point is, however, available.

The table had best be left to speak for itself, but it will, I think, be admitted that in general the results are encouraging and that they tend to confirm, and even strengthen, our original anticipations, which were, briefly, that at least a moderate degree of protection against infection might be expected, while more decidedly beneficial effects might be hoped for in a diminution of both the frequency and the gravity of the pulmonary complications.

Periodic returns have continued to be received since the period dealt with in the table, but these have been either negative altogether, as regards incidence of the disease, or show so few cases of influenza in either group as to be valueless from a statistical standpoint.

BRISTOL HOSPITAL SUNDAY FUND.—The Lord Mayor of Bristol has expressed his delight at the satisfactory progress of his Sunday Fund, which bids fair to show a substantial increase on last year's record total of over £5000. Collections to hand so far are bigger by 25 per cent. than the corresponding figures of last year. It is interesting to note that the movement towards coöperation between the hospitals receives such tangible support from the Bristol public, who, by means of this fund and the collections made by the various firms, show a certain approval of the principle of hospital union which has for some time past been under discussion in Bristol.

COMPLEMENT-FIXATION EXPERIMENTS IN INFLUENZA.

BY H. J. B. FRY, M.D. OXON.,
CAPTAIN, R.A.M.C. (T.);
AND
C. LUNDIE, M.D. GLASG.,
CAPTAIN, R.A.M.C. (T.C.)

IN the first part of a previous note[1] by one of us (H. J. B. F.) an organism isolated from cases of influenza was described and its morphological and cultural characters given. It was there stated that the serum of a patient from whose blood the organism had been isolated had shown definite complement-fixation with an antigen prepared from the organism. This result encouraged us to try a similar experiment with sera obtained from other cases of influenza, which had been investigated (H. J. B. F.) during the two previous waves of the epidemic. The sera from these cases were old at the time of this experiment. Although preserved in sealed glass capsules, and, as far as possible, kept on ice, some deterioration was to be expected. Owing to the decline of the influenza epidemic cases of recent influenza have been infrequent, but the sera from a few definite cases of a mild type have been examined together with other sera as controls. One of us (C. L.), as the pathologist in charge of the serological work of No. — General Hospital (Venereal), had very favourable opportunities for examining sera from syphilitic and other patients as controls. The complement-fixation experiments described below were carried out by him, and in order to render the test more rigid he was ignorant of the nature of the cases from which the sera were derived.

Experiments.

The experiments group themselves under the following headings:—

1. Old sera obtained from cases of influenza at the height of the epidemic 1918–19.
2. Fresh sera and cerebro-spinal fluids from recent cases of influenza.
3. Control sera (*a*) from normal individuals; (*b*) from syphilitic patients who have never had influenza; (*c*) from patients with no recent history of influenza; and (*d*) sera from patients suffering from other pyrexial diseases, typhoid fever, malaria, tuberculosis, &c.

The total number of influenza sera examined is 15, which includes: Influenza old sera, 5; influenza fresh sera, 8: and influenza cerebro-spinal fluids, 2.

Control Cases (32).

(*a*) Normal	Sera ... ... 3 Cerebro-spinal fluid 1 } with no history of influenza..	4
(*b*) Syphilitic sera with no history of influenza ...		10
(*c*) Syphilitic sera with histories of influenza not later than one year		6
(*d*) Sera from specific diseases	Typhoid	1
	Malaria	5
	Tuberculosis	3
(*e*) Sera from non-specific diseases		3

Serological Technique (*C.L.*).

(*a*) *Hæmolytic system.*—Sheeps' corpuscles were used in a 5 per cent. suspension after washing six times with saline. The corpuscular suspension was sensitised with 5 M.H.D. of rabbit anti-sheep serum (Burroughs and Wellcome) titre 1 in 2000–3000. Complement was guinea-pig's serum used fresh on the same day, and was titrated in the usual manner prior to each set of experiments.

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[1] Fry: THE LANCET, 1919, ii., p. 51.

(*b*) *Sera.*—The test sera were inactivated at 55° C. for 10 minutes, and diluted 1 in 5 after inactivation immediately before use. It was found important that the sera should be kept sterile to prevent anomalous reactions.

(*c*) *Antigen* (*H. J. B. F.*).—The source of the antigen is the strain of the bacillus obtained by blood culture from the patient whose serum, as stated previously, gave a positive complement-fixation reaction. The 24-hour growth on an agar slope (+ 10) is emulsified in 2 c.cm. sterile normal saline. The emulsion is allowed to undergo extraction in the incubator at 37° C. for 12–18 hours. It is then centrifuged at high speed for 15 minutes. The supernatant opalescent fluid is pipetted off and stored in sterile glass capsules after heating to 60° C. for one hour.

(*d*) *The test.*—The antigen-serum-complement mixture is shaken and allowed to stand half an hour at room temperature, and then incubated for half an hour at 37° C. The fully sensitised red cells are added, and the whole re-incubated for half an hour at 37° C. The readings are then taken. In general the test was performed with an antigen control, a test serum control with 1 and 2 M.H.D. of complement, and the test sera were put up with unit volumes of complement containing 1, 2, 3, and 4 M.H.D. respectively.

Experimental Results : (*a*) *Antigen Titration.*

Four different antigens were originally prepared for testing their power of absorbing complement.

Antigen (1): Saline emulsion of a 24-hour agar growth heated to 60° C. for one hour.

Antigen (2): Centrifuged extract of a 24-hour agar growth unheated.

Antigen (3): Centrifuged extract of a 24-hour agar growth heated to 56° C. for half an hour.

Antigen (4): Centrifuged extract of a 24-hour agar growth heated to 60° C. for one hour.

Antigen (3) was the one used in the preliminary experiment already reported (loc. cit.). The titre of the complement-absorbing power of each antigen was determined on the same day as the tests on the influenza sera to be reported below. Each antigen was titrated in five dilutions (1 in 5, 1 in 7½, 1 in 10, 1 in 15, and 1 in 20 respectively), and each dilution was put up with two strengths of complement, 1 and 2 M.H.D. respectively. Each set of dilutions of antigen had one control using saline instead of antigen for each strength of complement.

Antigen 1.—All controls completely hæmolysed (1 and 2 M.H.D.). Antigen dilutions with 1 M.H.D. complement 1 in 20 dilution nearly hæmolysed. Antigen dilutions with 2 M.H.D. complement, 1 in 5 dilution, nearly hæmolysed. Antigen dilutions with 2 M.H.D. complement, 1 in 7½ dilution, completely hæmolysed. Antigen (1) was therefore used in a dilution of 1 in 7½.

Antigen 2.—All controls completely hæmolysed (1 and 2 M.H.D.). Antigen dilutions with 1 M.H.D., none hæmolysed. Antigen dilutions with 2 M.H.D., none completely hæmolysed. Antigen dilutions with 2 M.H.D., 1 in 20 dilution, nearly hæmolysed. Antigen (2) was therefore used in a dilution of 1 in 30.

Antigen 3.—All controls completely hæmolysed (1 and 2 M.H.D.). Antigen dilutions with 1 M.H.D., none completely hæmolysed. Antigen dilutions with 2 M.H.D., 1 in 20 dilution, completely hæmolysed. Antigen (3) was therefore used in a dilution of 1 in 20.

Antigen 4.—All controls completely hæmolysed (1 and 2 M.H.D.). Antigen dilutions with 1 M.H.D., 1 in 15 dilution, completely hæmolysed. Antigen dilutions with 2 M.H.D., 1 in 10 dilution, completely hæmolysed. Antigen (4) was therefore used in a dilution of 1 in 15.

(*b*) *Complement-Fixation Tests.*

Five old sera from influenza cases were then tested with each of the four antigens, the latter being put up in the dilutions stated above. Antigen (1) 1 in 7½, Antigen (2) 1 in 30, Antigen (3) 1 in 20, Antigen (4) 1 in 15. For each serum there were three serum controls and three reaction tubes, the former having 1, 2, and 3 M.H.D.'s of complement respectively, but containing saline instead of antigen. The reaction tubes had each one volume of the required dilution of antigen and one volume of complement dilution, the latter being so arranged as to give 1, 2, and 3 M.H.D.'s of complement respectively in the three reaction tubes. (Complement titration gave one volume of a dilution of 1 in 35 as containing 1 M.H.D.)

Results.

The results are shown in the Series I., in which—

+ means complete fixation of complement (no hæmolysis).

− means no fixation of complement (complete hæmolysis).

± means more than half of complement fixed (less than half hæmolysis).

∓ means less than half of complement fixed (more than half hæmolysis).

tr. means almost complete hæmolysis.

SERIES I.—*Influenza, Old Sera*, 5 *Cases.*

No.	Name.	Onset of disease.	Blood taken days after onset.	Antigen.	Serum control.			Test.			Result.
					M 1	H 2	D 3	M 1	H 2	D 3	
1	S	29/1/19	21	i.	+	±	−	+	+	∓	Positive.
				ii.	+	±	−	+	±	+	
				iii.	+	tr.	?	+	+	+	
				iv.	+	tr.	−	+	+	+	
2	M	10/11/18	10	i.	∓	−	−	±	−	−	Weak, positive.
				ii.	∓	−	−	+	tr.	−	
				iii.	∓	−	−	+	−	−	
				iv.	∓	−	−	+	∓	tr.	
3	C	29/10/18	21	ii.	+	−	−	+	∓	tr.	Positive.
				iii.	∓	−	−	±	∓		
4	B	20/12/18	7	i.	∓	+	−	+	+	tr.	,,
				ii.	+	+	tr.	+	+	tr.	
				iii.	+	−	−	+	+	∓	
				iv.	∓	∓	−	+	+	tr.	
5	T	27/10/18	22	i.	±	−	−	+	+	∓	,,
				ii.	±	∓	−	+	±	tr.	
				iii.	±	−	−	+	∓	tr.	
				iv.	±	−		+	∓	∓	

Remarks on Cases in Above Table.

1. Original case from which organism was derived in blood culture. Temp. 104° at b.c. Recovery. Serum taken in convalescence.

2. Temp. 102°–104°. Recovery. Blood taken during pyrexia.

3. Blood taken during convalescence 10 days after fall of temperature to normal.

4. Severe case. Both lungs involved. Blood taken during pyrexia.

5. Severe case, Temp. 104°. Blood taken 5 days after fall of temperature to normal.

The age of the sera in Series I. may account for a certain amount of fixation of complement in the serum control tubes. In each case, however, there is a greater degree of fixation of complement in the reaction tubes than in those of the controls, in some cases considerably greater. All the sera were derived from severe typical cases of influenza during the second wave of the epidemic, November, 1918, to January, 1919. Antigen 4 proved to be the most satisfactory antigen in the above series, and was at the same time the least anticomplementary.

The above results suggested further experiments with sera from more recent cases of influenza using Antigen 4, which was the one employed in all subsequent experiments. The results are given in the table (Series II.).

SERIES II.—*Influenza, Fresh Sera, 8 Cases; Cerebro-spinal Fluid, 2 Cases; Total, 10 Cases.*

No.	Name.	Onset of disease.	Blood taken days after onset.	Serum control.			Test.				Result.
				M.H.D. 1	2	3	M.H.D. 1	2	3	4	
1	Cpl. J.	25/6/19	2	–	–	–	±	–	–	–	Negative.
			22	–	–	–	+	+	+	+	Strong positive.
2	Pte. P.	5/7/19	1	–	–	–	±	–	–	–	Negative.
			12	–	–	–	+	+	+	+	Strong positive.
3	Pte. S.	2/7/19	3	–	–	–	tr.	–	–	–	Negative.
4	Pte. K.	21/7/19	3	–	–	–	+	+	–	–	Weak positive.
			16	–	–	–	–	–	–	–	Negative.
			25	–	–	–	+	+	+	–	Positive.
5	Pte. H.	16/7/19	7	–	–	–	+	+	+	+	Strong positive.
			21	–	–		–	–	–	–	Negative.
			30	–	–	–	–	–	–	–	"
6	L/Cpl. L.	3/8/19	6	±	–		+	–	–	–	"
			12	–	–	–	–	–	–	–	"
7	Pte. —.	3/8/19	4–5 months	–	–	–	+	+	+	–	Positive.
8	Pte. —.	3/8/19	11 months	–	–	–	+	?	±	∓	Weak positive.
				Cerebro-spinals.							
A	Capt. H.	...	...	±	±	±	+	+	–	–	Controls not satisfactory.
B	Coolie X.	...	...	–	–	–	+	+	–	–	Weak positive; for all dilutions.*

Dilutions of C.-S.F. used—1 in 1, 2 in 5, 1 in 5, and 1 in 10.

* See notes below.

Remarks on Cases in Above Table.

1. See notes below. Agglutination 1/50 with bacillary emulsion.
2. See notes below.
3. Rejected. Serum contaminated.
4. See notes below.
6. Doubtful case of influenza clinically.
7. Influenza in February, 1919, under observation for syphilis.
8. Influenza in July, 1918, under observation for syphilis.

Clinical Notes. (*H. J. B. F.*)

The results in certain of the experiments in Series II. are so definite that short clinical notes of the cases from which the sera were obtained are given below.

1. Cpl. J., age 29, admitted 27/6/19. History: Sudden onset with headache, fever, and weakness 25/6/19. No marked pains in body, no cough. No previous attacks of influenza. Temperature on admission 103° F. Tongue furred, face flushed, slight diminutions of breath sounds at both bases, together with fine crackling crepitations; a few rhonchi at right apex. Blood culture 27/6/19 proved sterile. 2/7/19: Temperature fell by crisis below normal, followed by rise to 102° at night; fine rhonchi, and crepitations at both bases behind, with diminished vocal fremitus. 9/7/19: Rise of temperature after being normal three days. Small patch of bronchial breathing at left base, with increased vocal resonance and crackling crepitations. 13/7/19: Percussion note impaired at both bases behind. Breath sounds absent. Vocal resonance diminished. Profuse blood-stained expectoration, continuing 3–4 days. 17/7/19: Temperature normal, lung signs diminishing, and condition good.

2. Pte. S., age 28, admitted 4/7/19. Sudden onset 2/7/19, with pain in chest and cough and blood-stained sputum. Face dusky and cyanosed. Diminution of breath sounds at both bases. No adventitious sounds. Viscid, mucinous, blood-stained expectoration. Pulse regular, but feeble. No previous attacks of influenza. 5/7/19: Blood culture and cerebro-spinal fluid both proved sterile. 6/7/19: Temperature fell from 105° to normal. No physical signs in lungs. Pulse much improved in volume and tension. Expectoration remained blood-stained for a time. 9/7/19: Rapid general improvement. No further physical signs in heart or lungs.

3. Drvr. P., age 28, admitted 5/7/19. Sudden onset 5/7/19, with fever, headache, and pains in body. T. 102·6°. Influenza two years previously. Dry cough, slight pain in right side of chest. Blood culture 6/7/19 proved sterile. 7/7/19: Temperature down to 99°. No physical signs.

4. Pte. K., age 19, admitted 23/7/19. Sudden onset 21/7/19 with pain in body, headache, and weakness in legs. Slight cough and expectoration. No previous attacks of influenza. Face dusky, eyes injected, herpes on upper lip; heart, first sound rather short and of poor quality. No physical signs in lungs. T. 101°–103·8°. 24/7/19: Blood culture proved sterile. 27/7/19: Temperature gradually falling; slight epistaxis; slight diminution of breath sounds at right base and diminished vocal fremitus. 29/7/19: Again slight epistaxis. 1/8/19: Temperature normal.

4. Pte. H., age 24, admitted 21/7/19. Malaise from 16/7/19. Worse on 20/7/19 with headache and pains in chest and weakness. Not much cough. T. 101°–102°. No physical signs. No previous history of influenza. 23/7/19: Blood culture proved sterile. 24/7/19: Temperature fell by crisis and remained normal.

6. L/Cpl. L., age 28, admitted 7/8/19. Onset with headache and pains in right side of chest. T. 103°. No previous attack of influenza. 9/8/19: Respiration difficult; pallid, sweating. Heart not enlarged; first sound rather weak, pulse fairly regular and of good volume. Percussion note resonant all over chest, vocal fremitus diminished at the bases. No adventitious sounds. Breath sounds vesicular. Sputum muco-purulent, viscid, and, slightly blood-stained. 10/8/19: A few fine crackling crepitations at left base and fine rhonchi. 12/8/19: Pale and slightly cyanosed, but better. Fine rhonchi and crepitations all over both sides of chest. Bronchial breathing over small patch below angle of right scapula. Heart slightly dilated. 12/8/19: Expectoration profuse and blood-stained. Temperature normal. 14/8/19: Much improved, very few rhonchi in lungs, a few fine crepitations in both lungs, slight diminution of vocal resonance at right base, no dullness on percussion. 16/8/19: Lungs clear of adventitious sounds. Condition good.

Cerebro-spinal Fluids.

B. Coolie X.—Onset with symptoms of influenza, T. 103° F., and signs of broncho-pneumonia in both lungs, especially left. Developed cerebral symptoms with marked rigidity of muscles of neck, with a positive Kernig's sign, and extensor plantar response. Lumbar puncture 20 c.cm. fluid removed under fair pressure, turbid, and slightly blood-stained. Films from fluid showed a few polymorphonuclears and lymphocytes. No intra- or extra-cellular cocci seen, but a few Gram-negative bacilli. Culture was obtained on Matthew's medium, but the organism was subsequently grown in pure culture on agar, and was used as a control antigen (see below). Patient died, but no post-mortem examination was permitted.

Control Experiments.

Controls were carried out on sera from normal individuals who were free from any history of influenza, on sera from patients under investigation for syphilis, and on sera from patients suffering from ascertained diseases. Two serum controls were put up with saline instead of antigen containing 1 and 2 M.H.D. of complement respectively, and four reaction tubes containing 1, 2, 3, and 4 M.H.D. complement.

1. *Normal sera.*—Three sera, with negative serum controls, from individuals who had never had influenza, were all completely negative (1, 2, 3, and 4 M.H.D.). Cerebro-spinal fluids: One normal cerebro-spinal fluid similarly gave a negative reaction (1, 2, 3, and 4 M.H.D.).

2. *Syphilitic sera.*—(*a*) With history of influenza: Of sera from 16 cases, 6 had influenza at varying dates from August, 1917, to June, 1918, of these 1 only (influenza, June, 1918) gave a partial reaction (∓ – – –). The remainder were negative in all four dilutions. (*b*) With no history of influenza: The remaining 10 sera were from syphilitic cases free from any history of influenza. The reactions were negative in all four dilutions.

3. *Sera from specific diseases.*—(*a*) Typhoid: In one case of typhoid (*B. typhosus* recovered by blood culture and from fæces) the serum taken during convalescence was negative in all four dilutions. (*b*) Malaria: Of five cases of malaria (parasites in blood films) three had a history of influenza. One with a history of influenza in July, 1916, gave an incomplete negative reaction (± ± – –), the second with a history of influenza in September, 1918, gave a doubtful reaction (± ? – –). The third, with a history of two attacks in 1912 and 1916, gave a strong positive reaction (+ + + +). The remaining two cases (Austrian prisoners) stated that they had no history of influenza. The sera gave incomplete negative reactions (+ ∓ – –) and (+ ∓ ∓ –). The blood specimens were taken a few hours after the rigor, during pyrexia. (*c*) Tuberculosis: Three cases with tubercle bacilli in sputum were investigated. One was complicated by an acute gonorrhœal infection with fever and epididymitis. The reaction was completely negative in this case, and there was no history of influenza. Of the sera from the two remaining cases one with no influenzal history gave a complete negative reaction, the other gave a positive reaction (+ + + –), but had a history of a severe fever of unknown nature in October, 1918, at the time of the influenza epidemic.

Sera from pyrexias of unknown origin (*3*).—One case of a simple catarrhal jaundice with pyrexia (blood culture sterile) gave a completely negative reaction, and the patient had never had an attack of influenza. Two other cases of pyrexia of undetermined origin, with sterile blood cultures and agglutinations negative for typhoid-paratyphoid group, gave negative reactions. There was no recent history of influenza in these cases.

Control experiments with an indifferent antigen.—An endeavour was made to control the specificity of the antigen described above by means of an antigen prepared in exactly the same manner from a lactose-fermenting coliform organism found as a contamination in the cerebro-spinal fluid of a case of influenza (v.S.). Eight sera were tested against this organism as antigen. Three of these sera from cases of influenza had given a quadruple positive reaction with the "influenza antigen;" but gave a quadruple negative with the coliform organism as antigen. Five sera from cases of influenza which had given partial reactions with the "influenza antigen" gave quadruple negatives with the antigen from the coliform organism. The coliform organism did not, therefore, exhibit any of the antigenic properties shown by the organism under investigation.

Discussion of Results.

Owing to the decline in the incidence and virulence of the influenza epidemic and to difficulties connected with demobilisation, the results given above are somewhat scanty and incomplete, but are recorded under present circumstances in the hope that they may serve as a basis for criticism and further investigation. It seems legitimate to assert that the antigen prepared from the organism investigated shows definite fixation of complement with sera from cases of influenza. The results obtained in the case of the old sera are open to criticism owing to the fixation of a certain amount of complement by the sera themselves though the difference in the amount of complement fixed by the serum controls and the test sera is well marked in all the cases with Antigen 4. The old sera were all derived from severe cases, but the recent cases of influenza investigated have all been of a relatively mild type, which may perhaps account for some anomalous reactions. In Case 4 of Series II. a negative result was obtained with the serum in the third week after onset, after a weak positive reaction had been obtained with the serum in the first week. The serum obtained in the fourth week, however, gave again a fairly strong positive reaction. In Case 5 of the second series the negative results with serum obtained in the third and fourth weeks after a strong positive reaction with the serum obtained in the first week after onset may perhaps be explained by the rapid disappearance of the immune bodies after a short mild attack. This would accord with the clinical experience of second attacks of influenza at short intervals during the recent epidemic. In most cases the immune bodies as determined by the complement-fixation reaction do not appear to persist in the blood for a longer period than about one year (Case 8 and controls). Two cases, however, a malaria control and a tuberculosis control, gave strong positive reactions after three years' interval if the histories are reliable. It may be objected that mild cases of influenza are difficult to differentiate as clinical entities. The recent cases examined appeared to be genuine cases of influenza, and clinically to resemble the early cases seen in the first wave of the epidemic in the summer of 1918. It may be mentioned that two cases, which were at first considered to be cases of influenza but proved to be otherwise, gave completely negative reactions. No. 6 in Series II., though included amongst the cases of influenza, was not a typical one and the complement fixation reactions were negative.

It is significant that there was no case free from any history of influenza which gave a positive reaction, except two cases of malaria with doubtful histories, while no case with a definite recent history of influenza gave a completely negative reaction. In Cases 1 and 2 of Series II. a negative reaction with serum obtained shortly after the onset of the disease was followed by a strong positive reaction with sera obtained in the third and second weeks respectively, indicating the production during the course of the disease of antibodies in response to an infective agent, which was similar in nature to the original organism isolated during the third wave of the epidemic in February, 1919. It should also be noticed that in Case 1, Series II., an agglutination reaction to the same organism was obtained with serum at different periods of the disease in dilutions of 1/50 to 1/125 (Dreyer's technique). These results therefore bring the recent infections into relation with those of the previous waves of the epidemic by a common antigenic factor.

Summary.

1. An antigen prepared from an organism isolated in the third wave of the epidemic shows fixation of complement with sera derived from cases of influenza, both recent and those occurring in the previous waves of the epidemic.

2. This complement-fixation is absent in the case of sera from normal individuals who have never had influenza.

3. It is absent in the case of sera from individuals who are suffering from other specific diseases and are free from any recent history of influenza.

4. An antigen prepared from another organism shows no fixation of complement with sera from cases of influenza.

THE PERIODICITY OF INFLUENZA.

BY C. O. STALLYBRASS, M.D. LOND., D.P.H.,
ASSISTANT MEDICAL OFFICER OF HEALTH, CITY OF LIVERPOOL.

Dr. John Brownlee, statistician to the Medical Research Committee, in an article published in THE LANCET recently,[1] gave evidence that influenza has a periodicity of 33 weeks—i.e., that epidemic waves recur at intervals averaging 33 weeks, or multiples of 33 weeks. He further pointed out that from July 13th to March 1st (the maxima of the summer wave of 1918 and of the spring wave of 1919) is 33 weeks, but that the wave having its crest in this country on Nov. 2nd, 1918, does not fall into the sequence, leaving one to infer that there were two strains of the influenzal virus in operation. The brevity of his note concealed the immense amount of work which the investigation must have involved.

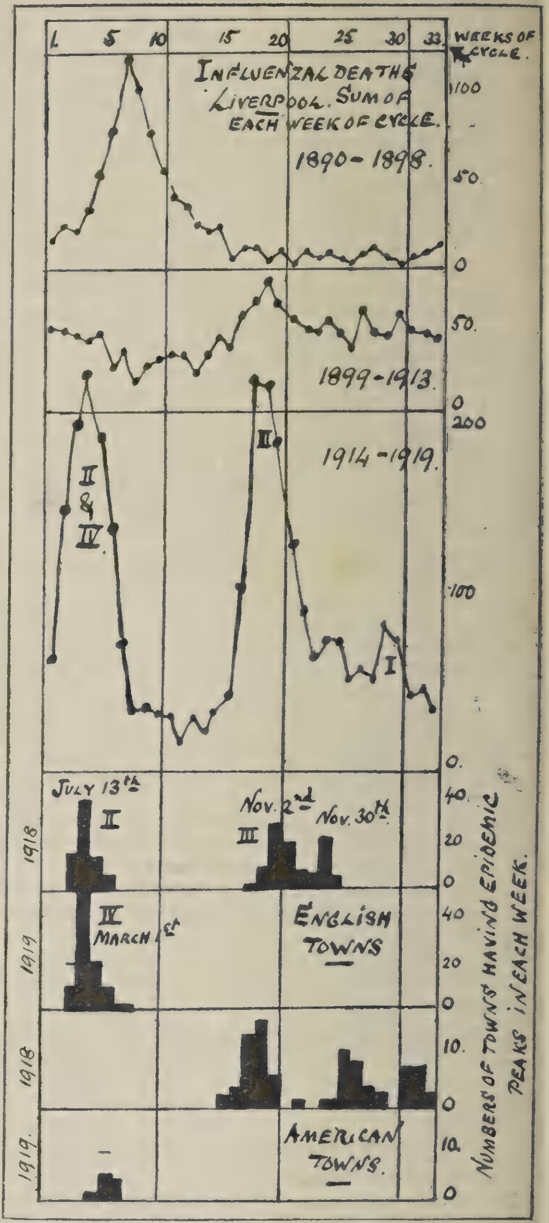
Brownlee stated that he had only been able to obtain weekly figures of deaths from influenza, pneumonia, and bronchitis for the City of London; I am able to supplement his investigation by the weekly deaths occurring in Liverpool during the period 1890–1919 that were ascribed to influenza and to all respiratory diseases. Prior to 1890 there were no deaths attributed to influenza for a number of years.

The following table is based on his periodicity of 33 weeks; starting with the first week in January, 1890, which I term the first week of the cycle, the weekly deaths are arranged in rows of 33, the resulting 33 columns being totalled for the two subperiods 1890–1913, 1914–1919; this division was adopted because from 1914 onwards there was a progressive increase in the annual number of influenzal deaths, 1917 excepted, which totalled 78, 100, 171, 55, and 1388 in successive years. The columns of the table show the weeks of the cycle of 33 weeks on which maxima occur, and the figures in brackets are the totals for those weeks :—

—	II.-IV.	III.	I.
Liverpool: Deaths from influenza—			
1890–1913	7th week (152).	19th week (81).	27th week (69).
1914–1919	4th week (221).	18th & 19th weeks (218 & 216).	29th week (80).
Liverpool: Deaths from all respiratory diseases—			
1890–1913	7th week (2729).	19th week (2565).	27th week (2484).
1914–1919	3rd week (706).	19th week (711).	—
96 English towns: Corresponding weeks of maxima 1918–19[2]...	4th week (July13th and March 1st).	20th week (Nov. 2nd).	—
American cities: Corresponding weeks of maxima 1918–19[3]...	6th week (March 15th).	19th week (Oct. 26th).	31st & 32nd weeks (Jan. 18th and 25th).

I have added for the purpose of comparison the weeks corresponding to those of the cycle in which the various waves reached their crests in the greatest number of towns in England and Wales and in the United States.

Closely corresponding with Brownlee's observations on London by far the most definite periodicity is shown during the years 1890–1899, during which period there is one well-marked maximum at the seventh week of the cycle. During the period 1899–1913 a new maximum in the nineteenth week of the cycle comes into play and continues to recur until the culminating point is reached in the week ending Oct. 26th, 1918, a week earlier than in most English towns (Wave III.); a further 66 weeks carries one forward to the first week in February of this year, as Brownlee pointed out, and the outbreaks that are being reported in Japan, Paris, Chicago, New York, &c., would show that this strain has punctually reappeared. These points are illustrated in the diagram.



There is also evidence in the table of a small maximum at the twenty-seventh week of the cycle in the earlier subperiod, and at the twenty-ninth week in the later subperiod; slight movements of the maxima forwards or backwards in the cycle over a number of years may, perhaps, indicate a periodicity slightly greater or less than 33 weeks. The twenty-ninth week of the cycle fell on the weeks ending May 18th, 1918, and Jan. 10th, 1919. An examination of the figures in Dr. Hope's annual report for Liverpool for 1918[4] shows that there was a definite wave of influenza reaching its crest on May 18th (Wave I.), and there is also a definite rise in the deaths from influenza, respiratory diseases, and from all causes, making a small peak in the week ending Jan. 3rd, 1919, but it is hidden by the enormous waves of October and March, so that it only appears as an irregularity in the curve; but it was noted at the time that influenza had not declined in Liverpool during January in the way that it had in practically all other English towns.[5] These two waves do not appear to have played a large part in this country, but the outbreaks in the Grand Fleet in May, 1918,[6] and also in Spain, Glasgow, &c., may, perhaps, be attributed to it. In the U.S.A. in January, 1919, it would appear to have played a much larger part. In a large number of American cities two waves were experienced, the first being the October wave; the crest of the second wave sometimes fell in March, as did one of the crests in this country, but in a number of instances—e.g., Cambridge, Washington, San Francisco, New Orleans, &c.—it fell in January, or to be exact, in the thirty-first and thirty-second weeks of the cycle. The close relationship of Liverpool and Glasgow with the United States through the incoming stream of American troops may perhaps account for the presence of this May wave in these two towns, and not in the rest of England.

The third maximum in the fourth week of the cycle is represented during the late outbreak by the waves culminating in Liverpool, and also the greater number of English towns on the weeks ending July 13th (Wave II.) and March 1st (Wave IV.). This is a 33 weeks interval. This wave recurred at an interval of 32–34 weeks in a large number of English towns.

The annual report of the Medical Department of the Local Government Board for 1918–19 gives a valuable table (Table III.) showing the exact week in which the three main waves, summer, autumn, and spring, reached their crests or epidemic peaks in each town; this table may be epitomised so as to show the numbers of towns having their epidemic peak in successive weeks as follows:—

(II.) *Summer Epidemic* (*68 Towns*).

Week ending—		Week ending—	
(1) July 6th	15	(3) July 20th	12
(2) ,, 13th	36	(4) ,, 27th	5

(III.) *Autumn Epidemic* (*96 Towns*).

Week ending—		Week ending—	
(0) Oct. 19th	2	(4) Nov. 16th	7
(1) ,, 26th	9	(5) ,, 23rd	6
(2) Nov. 2nd	27	(6) ,, 30th	22
(3) ,, 9th	19	(7) Dec. 7th	4

(IV.) *Spring Epidemic* (*95 Towns*).

Week ending—		Week ending—	
(1) Feb. 22nd	12	(4) March 15th	10
(2) March 1st	50	(5) ,, 22nd	1
(3) ,, 8th	21	(6) ,, 29th	1

Of these towns only 65 are shown as experiencing all three waves, and the remainder, including both towns having their maxima in the week ending Oct. 19th, may be excluded for purposes of comparison. On this basis the largest number of towns fall in week (2) in each of the three epidemics, but whereas the summer and spring epidemics are practically confined to four weeks for their maxima, the autumn epidemic is spread over seven weeks. Now, on the basis of a periodicity of 33 weeks it might be expected that a town having the crest of its epidemic in any week of the summer series should have its spring recurrence in the same week or, at any rate, within a week on either side, but that there need be no such connexion between the time of the crest of the autumn wave and the times of the crests of the summer and spring waves respectively. This is suggested by the frequency curve—i.e., the distribution of the numbers of the towns as given above, and is borne out by a closer analysis. Thus of 65 towns which experienced all three waves 47 (72 per cent.) had their maxima in the summer and spring epidemics within an interval of 32–34 weeks; but comparing the week in which any given town had its epidemic peak in the summer and autumn, and autumn and spring epidemics only 27 (41 per cent.) and 31 (47 per cent.) respectively fell within the limit of a week on either side. The time relationships of the maxima in summer and spring were much closer to each other than they were to the autumn maxima.

If it should prove correct that there were three strains of the influenzal virus, each with a periodicity of about 33 weeks, and that simultaneously all three strains became enhanced in both virulence and infectivity, then we are faced with a phenomenon without an exact parallel, although the behaviour of the meningococcal viruses during the war presents some points of similarity. So far the weight of evidence leans to such an exaltation of a widespread endemic strain or strains rather than to dissemination from any particular focus in the world. In any case doubtless a good deal of spread of infection took place.

There is some evidence pointing to the existence in this country not only of a minor cycle of 33 weeks but also of a major cycle round about ten years maxima, although of varying intensity, having been reached in the years 1789–90, 1802–03, 1830–32, 1840–41, 1848–49 and 1851, 1854, 1869–70, 1879, 1890–91, 1898, and 1918–19. With the exception of 1854, all these dates are about the end of a decennium.

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AN EFFICIENT AND ECONOMICAL PYLON.

BY W. MONTGOMERY JOHNSTON,
L.R.C.P. & S. EDIN., L.R.F.P.S. GLASG.,
MEDICAL OFFICER IN CHARGE OF LONGFORD HALL LIMBLESS HOSPITAL, STRETFORD, AND BASFORD HOUSE LIMBLESS HOSPITAL, STRETFORD, MANCHESTER.

THE important features of this pylon are: (1) A bucket moulded to fit the stump, and supported by a fibre cone with a satisfactory rim at the top; (2) simplicity of design; (3) light weight and low cost of production. All these points have been kept in view during the experimental stages of development.

Details of Construction.

I will endeavour to illustrate the most important details in the manufacture of a thigh pylon. (Fig. 1.)

The patient stands on an elevated platform 1 foot high, at the side of which is an arrangement for holding his crutch. A fine gauze bandage, 6 yards long by 6 inches wide, is unfolded and dusted with plaster-of-Paris (preferably dental plaster). It is then rolled up loosely, and, after being soaked in water for two or three minutes, is squeezed and lightly rolled on the greased stump, so as to cover all the fitting surface required for the formation of the bucket, being careful in the process to keep well below the perineum (about 2 inches) and 1 inch below the ischial tuberosity. The bandage is carried higher on the outer side of the stump, so that when the bucket is completed the outer side of the rim at the top is generally 2 inches higher than the inner. (Fig. 2.) While applying the bandage all prominent ridges or folds on the surface are flattened out by hand.

The bucket, when formed, requires about five minutes to set hard. While it is hardening in position the measurement of the length of pylon required is taken. Before proceeding to do this it is essential to see that the anterior superior spines of the ilium are level, otherwise subsequent alterations will have to be made. With the patient standing, the distance is measured from the outer side of the top of the bucket to the platform, if possible in the direction of the heel in the normal subject standing to attention. This measurement is noted for further reference when making the cone.

By gentle manipulation, after hardening, the bucket will slide off the stump. It is then put aside until dry, when it is strengthened by gauze bandage incorporated with a thin solution of glue in water, strength about 1 in 4. (Fig. 3.) This is accomplished by painting glue solution on the bucket while the bandage is applied. It is again put aside to dry, and when sufficiently dry a leather lining, first cut from a paper pattern, is fixed on the inside by rye flour paste or thin glue solution, the leather being sufficiently large to turn over each end. It may require several small incisions above and below to simplify turning over. While drying, contraction of the lining can be prevented by filling the bucket with dry sand.

After the lining has dried sufficiently a rubber collar is fixed to the upper end of the bucket. (Fig. 4.) The rubber collar, or top, is made in the following manner: A piece of sheet rubber ⅛ inch thick, from 4 to 5 inches wide, and of sufficient length to surround the outside of the upper part of the bucket, is laid flat on a table and secured by pins or fine nails. After being well rubbed with glass-paper it is coated with good rubber tyre solution and allowed to dry. A rope is made from felt ¼ inch thick and 1½ inches wide, and of the same length as the rubber. The felt is rolled, and by a continuous stitch through the centre is formed into a circular band. (Fig. 5.) This is placed longitudinally in the centre line of the rubber, which has been re-solutioned. (Fig. 6.)

The rubber is then folded over the cord, forming a collar which appears on section as illustration. (Fig. 7.) The flat adherent ends of the rubber surrounding the cord are held in position until dry by metal rods and clamps. The collar thus formed is a flat rubber band with a round top; the flat part, preferably 1½ inches deep, is fixed by four or five bifurcated rivets to the outside of the top of the bucket, so that the round part clears the top. The ends of the collar are made to meet on the outer side and are kept in direct contact without a gap by covering with a small strip of leather 1½ inches wide. The bucket is now complete. (Fig. 4.)

The Fibre Cone.

This is made from compressed cane fibre 1/16 inch thick. One end supports the bucket and the other end is fixed to a wooden block. Besides fitting the bucket, the cone is made to support the round part of the rubber collar at the top.

Cutting the fibre for the cone.—Before this is done an outline from measurements is drawn on the fibre. The length of pylon required having already been noted on the patient's first attendance, deduct from this 2 inches for the wooden block, ½ inch for the rubber heel pad, and 1 inch for the rubber top, and in practice the result gives the measurement most suitable for the centre line of the cone. This gives a longer cone than is necessary for the finished pylon, but which when trimmed above and below to fit the bucket and wooden block will be found satisfactory in length.

Now measure the outside of the rubber collar where it is riveted to the bucket, and the outside of the bucket a few inches lower down, also the circumference of the wood block, adding to each measurement an inch for overlap. The length of fibre required (previously noted) is marked on the fibre by a straight line. This line meets at right angles at one end, the centre of measurement for the top of the bucket. Three or four inches lower down it meets at right angles the centre of the lower line of measurement of the bucket, and at the opposite end it meets at right angles the centre of the circumference of the wooden block. The ends of the top, lower, and bottom lines are connected by a straight line. This marks out the fibre required for making the cone.

Holes are punched out at equal distances from the sides of the fibre and at equal distances apart. (Fig. 8.) A space of 2 inches is allowed between each hole, which is punched ½ inch from the edge throughout the entire length. Copper rivets are inserted in the holes on one side of the fibre. The other side is folded over and fastened on the rivets, washers are put on, and the cone riveted up.

Fixing the Bucket in the Cone.

The bucket, as previously stated, being higher on the outer side, will not fit the top of the cone as at present formed without alteration. This is made by cutting the fibre in line with the circumference of the bucket below the round margin of the collar which it supports. The bucket being pressed firmly home, it is secured to the fibre by inserting three or four copper rivets about 1 inch from the top.

Fitting the Cone to Wooden Block.

Two sizes of blocks are used, each one about 5 inches long and with a double taper. (Fig. 9.) The larger size has a diameter at the top of 3½ inches and a tapered diameter of 3 inches. The medium size has a top diameter of 3 inches and a tapered diameter of 2½ inches. This is the size most commonly used. The end of the fibre part of the cone forms a collar round the upper tapered part of the block, to which it is fixed by screws with washers. A rubber pad, preferably made from an old motor-car tyre cover, is fixed on the end of the block by screws. This pad is found most useful and economical.

In the case of a short thigh stump a pelvic band is fixed to the outer side of the cone above. It consists of a vertical hinged rod about 9 or 10 inches long, ½ inch wide, and ⅛ inch thick. The rod has holes drilled for riveting to the outer side of the cone above. It is fixed at right angles to a flat curved metal band about 1 inch deep and ⅛ inch thick. This band is pliable. It approaches the middle line behind, curving round one side towards the middle line in front.

The joint of the vertical rod is placed as near the hip-joint as possible, the flat curved band lying in the hollow between the crest of the ilium and great trochanter. The flat band is covered with felt and leather, and is stitched to a band of webbing, which surrounds the body and is buckled on the opposite side in front.

Straps Required.

The measurements for straps may be taken when the patient first attends to have the bucket moulded on the stump.

The straps are made from strong webbing. One is made to form a waist belt. (Fig. 10.)

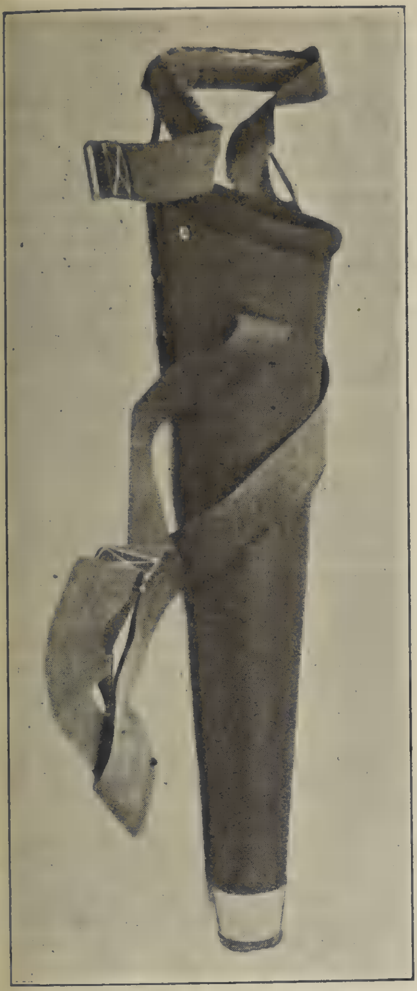
Two vertical straps attached to this are made to buckle with two straps attached to the centre line of the pylon, about 6 inches from the top in front and behind. Elastic webbing is preferable in the back strap to facilitate flexion at the hip-joint.

Two additional straps pointing to the opposite shoulder are fixed to the waist belt in a line taken from a point in the middle line of the front and back of the pylon, 6 inches below the top, the back strap crossing the opposite shoulder and buckling in front.

Below Knee Pylon.

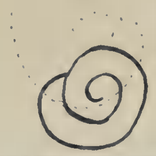
The method of making the pylon for a tibial stump is similar to that of the thigh pylon, with the addition of

1



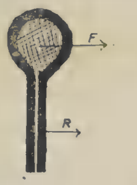
A general view of the thigh pylon.

5



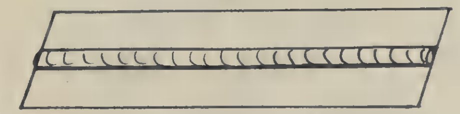
Felt rope on section. Dotted line shows stitch.

7



Rubber turned over to encircle felt rope. F, Felt rope. R, Rubber.

6



Felt rope laid along centre line of rubber sheet.

8

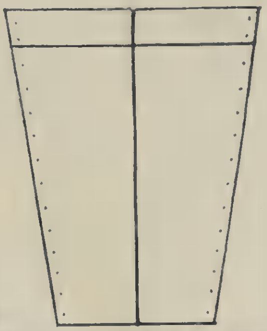
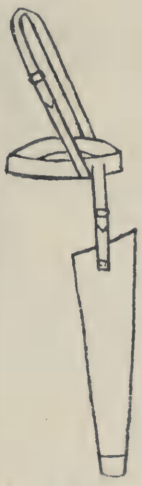


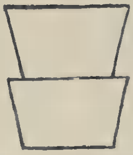
Diagram marked on the fibre before it is cut.

10



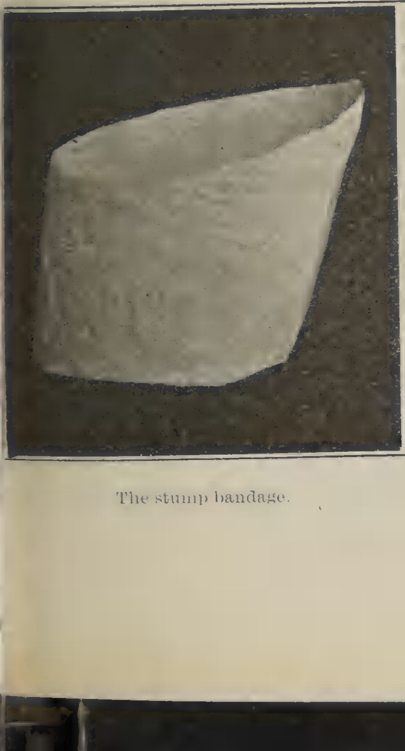
Pylon showing the arrangement of straps.

9



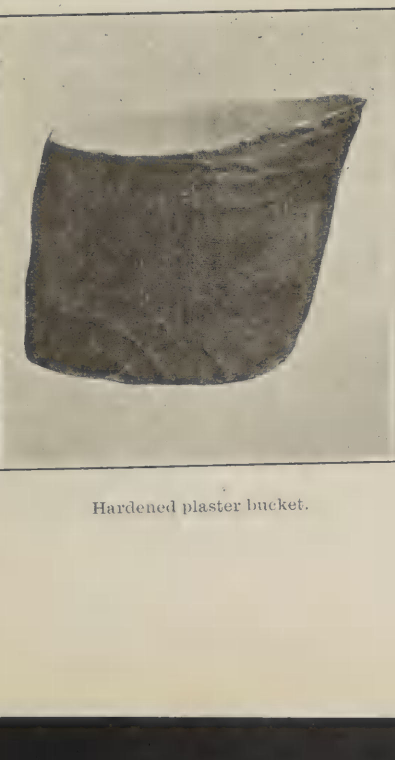
Wooden block with double taper.

2



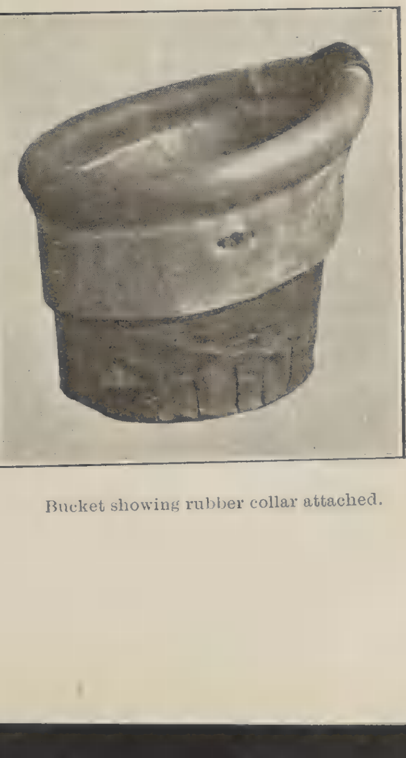
The stump bandage.

3



Hardened plaster bucket.

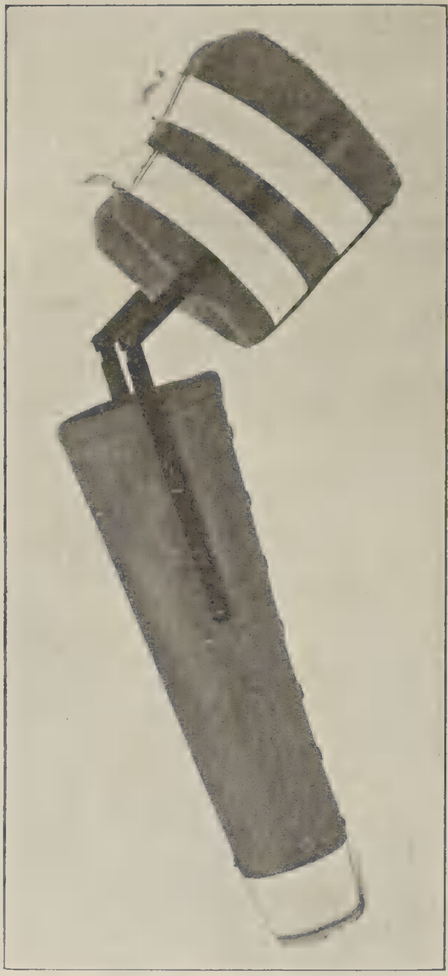
4



Bucket showing rubber collar attached.

jointed side irons riveted below to the fibre cone and above to a gauntlet, which is made from fibre lined with felt and fastened by straps. (Fig. 11.) In the case of a Symes amputation a small bucket is made and inserted in the fibre cone, which has a larger wooden block fitted and padded with felt to the required height. The rubber for making the top of the pylon can be purchased at a low cost, as can also the rubber pads for the wooden blocks, by buying scrap motor tyre covers and tyre tubes from some motor works.

11



Pylon for a tibial stump, showing jointed side-irons.

Approximate Cost.

The approximate cost is as follows:—

Material.	Quantity.	Price.	
Fibre	4 sq. ft.	3	0
Wooden block	1		9
Rubber heel pad	1		2
Webbing	4 yds.	1	6
Copper rivets and washers	12 of ea.		5
Bifurcated rivets	12		6
Buckles	4		8
Plaster	2 lb.		3½
Glue	¼ lb.		3½
Bandage, gauze	12 yds.	1	6
Leather lining	1¼ sq. ft.	1	10½
Rubber top	21″ × 5″	1	0
Rubber solution	—		4
Flour paste Enamel Screws	—		6
		12	9½

Pelvic bands and side-irons make a slight increase in price.

Owing to the intervals required for drying purposes three days are allowed for the manufacture of the pylon, although the actual time of labour is only four hours.

The type of pylon described above is made at the B.R.C.S. Limbless Hospital, Longford Hall, Stretford, Manchester. It is comfortable to wear. The men like it and walk well in it.

For assistance in the work of its evolution I must thank the members of the Ford Motor Company's Ambulance Division, especially Mr. George Holt, whose ideas in experimental work have helped to bring about results satisfactory to the limbless men themselves. Also to Mr. Philip Buckley, limbless surgeon, and Dr. Wheeler Hart, county director, B.R.C.S., whose enthusiasm in the work was most encouraging.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

THREE CASES OF

ACUTE PANCREATITIS.

By G. Percival Mills, F.R.C.S. Eng.,
ASSISTANT SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM; SENIOR SURGEON TO THE ROYAL ORTHOPÆDIC AND SPINAL HOSPITAL, BIRMINGHAM.

As the pre-operative diagnosis of acute pancreatitis is very difficult, the following three cases may be worthy of record.

Case 1.—M. R., female, 35, single. Previous history not known. On April 20th, 1919, after mid-day dinner, complained of pain in upper abdomen and back, which gradually increased during afternoon. At 10 P.M. the pain became agonising and during night patient was rolling about on the floor and praying for death. Vomited repeatedly. Pain and vomiting continued next day though pain was less severe. I saw patient on the evening of the following day with Dr. S. Shaw. She was obviously desperately ill. Temp. 97° F. Pulse 140 and very small. Resp. 20. Abdomen rather distended but moving slightly on respiration. Attempts at deep respiration or any movement of the abdomen caused agonising pain. There was tenderness over the whole abdomen, especially in epigastrium and right and left hypochondria. There was rigidity over the upper segments of both recti—more marked on the right. Dullness on percussion in both flanks. Liver dullness normal and no jaundice.

Diagnosis.—A provisional diagnosis of perforated gastric ulcer had been made, but the following points led us to reconsider this: (1) The type of pain, causing the patient to roll about on the floor; (2) the intense pain across the back; (3) the repeated vomiting; (4) though less important, the absence of free gas in the peritoneum was unusual in such an advanced case. These facts led me to suggest, though I regret to say, not to diagnose, an acute pancreatitis.

Operation (about 36 hours after onset).—Right paramedian incision above umbilicus. There was a quantity of blood-stained fluid in the peritoneum. The pancreas was swollen, and the peritoneum covering it enormously thickened by œdema. No fat-necrosis. There was a large calculus in the common duct, and the gall-bladder was full of small calculi. The gall-bladder was opened and all the calculi, including the one in the common duct, removed through it. The peritoneum was mopped dry, the gall-bladder drained, and a drainage-tube put in the pelvis. The patient was, of course, acutely ill, and the operation took 21 minutes. She was better for a time, but died the following day. No post-mortem was permitted.

CASE 2.—Mrs. H., 35, had been suffering from epigastric pain and flatulence after meals for a week. At 11.30 P.M. on June 14th, one hour after a meal, she was suddenly seized with violent epigastric pain and pain across back, which continued without cessation all night. Vomited five or six times. She was seen by Dr. B. Tomkys at 8 A.M. He found her in acute pain, with a temperature of only 99·2° and pulse of 92. The abdomen was not distended and moved on respiration, but respirations were very shallow as patient was afraid to take a deep breath. The whole abdomen was very tender, and there was tenderness across the loins also. When I saw her at 11 A.M. the condition was as above, but the pulse had risen to 100, there was definite though slight abdominal rigidity, and the patient had vomited again. The liver dullness was normal and there was no sign of fluid in the flanks.

Diagnosis.—Dr. Tomkys, who had been present at our discussion of the previous case, suggested that this might be another acute pancreatitis. I agreed, but was not convinced that we could exclude a perforated gastric ulcer. The pain was different in type from that in the last case. She lay still and was positively afraid to move.

Operation (about 12 hours after onset).—Paramedian incision above umbilicus. Peritoneum normal. No fat-necrosis. Single stone in gall-bladder the size of hazel nut. Head of pancreas swollen and hard; peritoneum over it greatly thickened and œdematous, as also was all the tissue round the common bile-duct, so that exploration was extremely difficult. The stone was removed from the gall-bladder, which was drained, and the common bile-duct was also opened and drained. A cigarette drain was also inserted down to the opening in the duct in case of leakage. During convalescence drainage of bile was very free from the tube, which had been stitched into the common duct. Progress was uninterrupted, and in three weeks patient was getting about and taking ordinary diet. A week later, however, she had another attack of pain with nausea and considerable abdominal tenderness. When I saw her on the following day she complained of stabbing pain in the left hypochondrium on taking a deep breath. Temp. 100°, pulse 96, and there were no abdominal signs. The next day pulse and temperature were normal and the pain was gone. There was no excessive fat in the stools (12·9 per cent. of dried fæces). She was put on a modified diabetic diet and was quite well in a few days. Her doctor recently informed me that she has been quite well ever since.

CASE 3.—A. T., female, 48. Seen June 15th, 1919, at General Hospital, Birmingham. Twenty-four hours previously attack started suddenly with pain in the epigastrium and between the shoulders, associated with copious eructation of gas and bilious vomiting. Pain was greatly increased on trying to take a deep breath. Later on there was some pain in right iliac fossa also. For ten years has had occasional attacks of pain between the shoulders with much flatulence and vomiting of bile. Last attack three years ago. On examination the patient looked seriously ill. Temp. 101°, pulse 104, and resp. 48. The respiratory movements were very shallow, but abdominal movement was present. There was distinct tenderness in the epigastrium, but to a slight degree in the right iliac fossa also. There was slight rigidity of both upper recti. Liver dullness normal and no free fluid.

Diagnosis.—Probable acute pancreatitis.

Operation (24 hours after onset).—Paramedian incision above umbilicus. Peritoneum normal. No fat-necrosis. Gall-bladder full; no calculus. Pancreas swollen and hard, the peritoneum over it œdematous, and the tissues round it and the lower part of the common bile-duct fixed and hard as though by a cellulitis. On carefully examining the head of the pancreas it was seen that there were about half a dozen ashy-grey necrotic patches, about the size of grains of corn, just under the œdematous peritoneum. The peritoneum was incised over these and a cigarette drain put down to the site. The gall-bladder, which contained bile, was also drained. Convalescence was uneventful, the pulse and temperature were normal on the third day, and the patient went home in three weeks. I heard from her on Oct. 31st, four and a half months later. She had had no more pain and was much better in her general health.

Remarks.

Without wishing to dogmatise on an experience of three cases, the following conclusions suggest themselves:—

1. These are probably early cases which would go on to gangrenous pancreatitis. In one case the gangrene had commenced—e.g., the necrotic patches in the pancreas.
2. Early drainage of the biliary tract will cure them. The first case was hopeless from the start.
3. Biliary calculi need not necessarily be present.
4. Points in diagnosis: (*a*) Thin middle-aged women—not fat men as is often stated; (*b*) general resemblance to perforated gastric ulcer in the sudden onset of acute abdominal pain after a meal, with abdominal tenderness and rigidity, low temperature, rapid pulse, and shallow breathing. But (1) pain is across back as well as in epigastrium, and may at first be of the colicky type; (2) vomiting is repeated and may be associated with much eructation of gas; (3) the rigidity in the early stages is not nearly so marked as in perforated ulcer.

Finally, it is worth noting that, though one would expect a trace of jaundice, it was not present in any of the three cases. Its absence, therefore, should not influence the diagnosis of acute pancreatitis.

TRAUMATIC RUPTURE OF INTESTINE WITHOUT EXTERNAL INJURY.

BY GERTRUDE M. A. HERZFELD, M.B., CH.B. EDIN.,

ASSISTANT SURGEON, ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH; LATE SENIOR HOUSE SURGEON, BOLTON INFIRMARY.

FIVE of these cases have occurred in Bolton Infirmary during the last two years, and, in view of the recent interesting papers by Mr. W. H. Battle and others on this subject I think the following notes may be worthy of record:—

CASE 1.—P. H., a well-developed lad of 14, was admitted at 7.30 P.M., June 24th, 1918, as a case of acute appendicitis. Temp. 101°, pulse 120. At 8.30 P.M. on the previous day, while out walking, he had stumbled and fallen heavily forwards, and a golf-ball in his right-hand coat pocket was driven into the right iliac fossa, causing such severe pain that he had to be assisted home. Shortly after reaching home he had vomited, and he had complained of constant abdominal pain up to the time of admission. I opened the abdomen at 9.30 P.M., 25 hours after the accident, by an oblique through-and-through incision in the right iliac fossa, and found a generalised peritonitis and a rupture of the ileum half an inch long, 2 feet from the ileo-cæcal valve. The appendix was normal. In addition, there were present a Meckel's diverticulum and a congenital horse-shoe kidney, the right half of which lay in the right iliac fossa, and was joined to the left half, lying partly in the pelvis, by a transverse band about 1½ inches broad. The perforation was sutured in two layers, and drainage-tubes were passed into the pelvis, kidney pouch, and right iliac fossa. The patient developed a patch of pneumonia on the tenth day, but made a good recovery and went home six weeks after operation. He is now well.

CASE 2.—G. L., male, 42, admitted Feb. 8th, 1918. Hit in the abdomen by an iron girder. Laparotomy six hours later. Lower end of ileum torn completely across, cæcum bruised. Ileum anastomosed to transverse colon. Death five hours later.

CASE 3.—A. L., male, 45, admitted Feb. 15th, 1918. Struck in right iliac fossa by a heavy plank of wood. Laparotomy four and half hours later; small rupture of anterior wall of cæcum; suture with drainage. Recovery.

CASE 4.—J. H., male, 17, admitted August 8th, 1918. Jumped over a counter on to a broom-handle which broke, and the sharp end of the lower fragment was driven through the anus into the rectum. Laparotomy eight hours later. Perforation of rectum and of ileum; suture with drainage. Death next day.

CASE 5.—G. C., male, 43, admitted Oct. 1st, 1919. Run over by a motor charabanc. Laparotomy six hours later. Complete tear of upper ileum; end-to-end anastomosis; no drainage. Recovery.

Remarks.

Apart from freak cases, like Case 4, or the tear which occurs at the attachment of the ligament of Treitz after a drop from a height, traumatic rupture of the intestine is caused either by (1) a heavy blow or crushing injury—e.g., Cases 2, 3, and 5; or (2) a sharp, not necessarily heavy, blow, which takes the abdominal muscles unawares (Case 4); in both the intestine is crushed against bone, either vertebral column or ilium.

The early diagnosis of these cases is often very difficult. The immediate signs of ruptured bowel, quâ rupture, are practically nil. Pain, tenderness, vomiting, flank and liver dullness, are signs which tend to confuse rather than clarify the issue. Especially is this the case where the lower thorax has been crushed as well. The pulse-rate and abdominal rigidity are of little value as early signs, but a rising pulse-rate and increasing rigidity call for immediate operation.

When in doubt it is probably wise to operate. The surgeons's point of view should surely not be "Is there evidence of ruptured intestine?" but "Is there sufficient evidence to justify exploration?"

If peritonitis with its concomitant distension, &c., is established, the operation follows the usual lines for that condition; in an early case, however, it is, I think, most important to begin with a sufficiently long incision; a small incision which subsequently has to be enlarged leads to waste of valuable time and maybe to faulty procedure. I make a paramedian incision, choosing the side according to the history or symptoms, and make it long enough to allow of a preliminary inspection before manipulation. Inspection often reveals the location of the injury and allows of adequate packing before disturbance of the abdominal contents. If, however, the first opening of the peritoneum is a mere nick, a careful watch can be kept for escape of gas; the abdominal wall should not be drawn forcibly forward at the moment of incision, as in an ordinary case, but allowed to lie naturally, while a small fold of peritoneum is lifted with forceps and nicked; otherwise one may be deceived by the inrush of air.

A resection should not, I think, be necessary; I have found the best procedure to be a lateral anastomosis between two separate tears, with, if need be, approximation of the loop. The peritoneal cavity should not be flushed out, but gently cleansed by wiping. When drainage is indicated the pelvis may be drained by a suprapubic stab, and one or other kidney pouch, but drainage should be avoided if possible.

The closure of the abdomen with through-and-through sutures of silkworm gut is especially important where the patient's general condition is bad. Wounds so closed appear to be no more liable to ventral herniæ than where suturing in layers has been done

The chief points in the after-treatment of my cases have been the Fowler position, Murphy drip, and Lane's cannulæ in the axillæ.

A NOTE ON THE INTRAVENOUS ADMINISTRATION OF MERCURIC IODIDE IN THE TREATMENT OF SYPHILIS.

BY R. L. SPITTEL, F.R.C.S. ENG.,
SURGEON, GENERAL HOSPITAL, COLOMBO.

IT is a safe statement to make that the medical world is agreed that "606" and "914" (whatever trade name they go by) are the drugs par excellence in syphilis, but it is also perhaps true to say that the majority of those with a large experience of syphilis are not disposed to rely solely on those preparations, and prefer to strengthen their action with mercury and iodides—drugs which have stood the test of time.

Salvarsan, given as it most often is by the intravenous route in a dose not far below the point of tolerance, has the advantage of the older drugs, in that these are given as a rule in smaller doses and by less direct routes. Iodides are given almost exclusively by the mouth; mercury by the mouth, inunction, intramuscular injection, and, by some, intravenously, but in small doses. Up to the present the most popular method of giving mercury with a view to reinforcing the action of salvarsan is by small weekly intramuscular injections of grey oil or calomel cream.

I here report a method of administering mercury and iodide, which I have found superior to any other. When, at the beginning of the war, there was a likelihood of a shortage of salvarsan, I experimented with arsenic, mercury, and iodide, taking as my working hypothesis dosage to the point of tolerance by the intravenous route.[1] An experience of over 4000 of these injections, during a period of four years, convinces me that the solution here advocated has only to be given a trial for its worth to be established. It is a valuable adjunct to the treatment of syphilis with salvarsan; the combination establishing a cure (as gauged by Wassermann tests, provocative and otherwise, at varying intervals) more quickly and permanently than by any other method I know.

Composition of the solution.—The solution has the following composition:—

Mercuric iodide...	50 gr. (3·24 g.)
Sodium (or potassium) iodide	8 dr. (28·42 g.)
Phenolphthalein (0·5 % solution) ...	20 ♏. (1 c.cm.)
Sodium hydrate (25 % solution) ...	about 2 dr.
Distilled water ... ... to	40 oz. (1000 c.cm.)

Before the addition of sodium hydrate the solution is acid; it has to be rendered slightly alkaline; the phenolphthalein it contains is both an index of correct alkalinity and a colouring agent. The sodium hydrate should be added last and gradually; once the neutral point is reached it is put in drop by drop until a brilliant and clear pink colour is obtained. The solution keeps indefinitely, and when prepared under aseptic precautions and stored in a glass-stoppered bottle is always ready for use. If kept too long it tends to become decolorised (probably from the presence of hydriodic acid); the addition then of a few drops of the odium hydrate solution quickly restores the necessary lkalinity and colour.

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[1] Practitioner, October, 1918.

Mode of administration.—The dose for an adult is to 12 c.cm. given intravenously with a 20 c.cm. or, etter, a 30 c.cm. syringe. The required dose is filtered ff through aseptic cotton-wool and drawn into the yringe, which is then filled to its full capacity with trained sterile or distilled water. This further ilution, with at least an equal quantity of water, referably more, is necessary to prevent pain and hickening of the vein; a 30 c.cm. syringe is therefore ecessary for the larger doses. Should any of the olution escape into the tissues outside the vein a ender induration results, as with salvarsan. Unless xceptionally well borne a dose of 12 c.cm. need not be xceeded.

Reaction.—The injection is tolerated well. Heavy loses may cause chill, fever, malaise, and abdominal ains with diarrhœa (sometimes bloody), and griping; ut there is scarcely any reaction when an initial dose f 7 or 8 c.cm. is given and gradually increased by or 2 c.cm. at a time, according to tolerance. Gingivitis nd salivation give the clue to quantity. Heart and idney disease need not stand in the way of careful losage.

Results.—The rapidity with which these injections ause the disappearance of syphilitic lesions is indeed ratifying; the results are not only far quicker than hose obtained with mercury and iodides given by any ther methods, but often even a single injection produces an effect almost as phenomenal as salvarsan. In erve syphilis especially some of the finest results are btained; this is not to be wondered at when the bsorptive action of iodides is remembered.

Courses of treatment.—The number of injections and he interval between them vary, of course, with the articular case. An ordinary case of secondary syphilis nay be treated with five or six injections each of alvarsan and mercuric iodide, given at intervals of from even to ten days alternately, in varying sequence or in uccessive courses. Often after such a series a negative Wassermann reaction is permanently obtained; if not, urther courses are given to meet particular needs.

Syphilis is not a disease with which any risk should be taken; and our knowledge of blood reactions not being final, it is hardly prudent to pin our entire faith on their infallibility. It is well, therefore, to safeguard the patient by prescribing mercurial treatment by mouth or inunction (measures which have the advantage that the patient can carry them out at home) for periods varying from 8 to 12 months, according to the demands of the case. Some such routine course as the following may be begun from the day the patient comes for advice, and be carried through despite the injections. Mercury, in the form of grey powder, is to be taken for six weeks; this is followed by an interval of one month, in the middle ten days of which an iodide mixture is given, e.g.:—

℞	Potass. iodid.	5 to 20 gr.
	Liq. arsenicalis	4 ♏
	Extr. sarsæ liq.	1 dr.
	Syrup. glycerophosph. co....	1 dr.
	Infus. cinchon. ... ... ad	½ oz.

Sig. To be taken in a glass of milk or water twice a day.

These oral courses of mercury and iodide are to be continued for about a year.

Colombo.

VOLUNTARY CORPS OF NURSES AT NEWPORT.—At a recent meeting of the Newport Town Council the Council approved a suggestion from the medical officer of health that the ladies who had aided the nurses in the war years should be asked to form a voluntary corps to be available for service in case of outbreak of influenza. A ward has been set apart in St. Michael's Hospital for influenza patients.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

BACTERIOLOGY OF TYPHUS AND RELAPSING FEVER IN MESOPOTAMIA AND NORTHERN PERSIA.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 27th, at which a paper was read by Dr. W. H. WILLCOX on Typhus and Relapsing Fever in Mesopotamia and Northern Persia. This paper was reported in THE LANCET last week.

Dr. J. C. G. LEDINGHAM showed a chart illustrating the course of the typhus and relapsing fever prevalences from October, 1917, to December, 1918, in relation to the meteorological conditions peculiar to Mesopotamia. The correspondence in time and shape of the two curves of lice-borne diseases was most striking. Both diseases started from small beginnings in the last quarter of the year and both attained maximal prevalence in April, thereafter to fall abruptly to minimal or zero figures in the hot season. The volume of the epidemics was mainly Indian, the British factor forming but an insignificant portion. During the rise of the two prevalences, when one might expect optimal conditions for the propagation of the disease by lice, the mean daily maximum temperature was gradually rising from 60° to 75° F. The relative humidity reached its maximum in January and then gradually fell, to reach its minimal of 10–25 per cent. in July, the hottest month of the year. After April conditions became increasingly unfavourable for the louse, the very high temperature with rapidly diminishing humidity interfering with breeding, whilst the hot weather led also to shedding of superfluous clothes and to excessive sweating, and consequently deprived the louse of comfortable shelter.

Bacteriological Diagnosis.

He then dealt with bacteriological diagnosis. In the case of relapsing fever this was entirely determined for notification purposes by the demonstration of the spirochæte. No case was returned as relapsing fever in the absence of a microscopic finding, and from an analysis of the laboratory findings there was a very close correspondence between the laboratory returns and the official figures. The microscopic diagnosis was a simple and straightforward procedure. It was not determined whether there were any other than the usual species of spirochæte present, for this was a difficult matter and the necessary facilities were not available. There was no reason to suppose that any insect other than the louse played the part of vector. The diagnosis of typhus fever was until the last quarter of 1918 on a clinical basis, supported by results of blood culture to exclude typhoid or paratyphoid, and microscopical examination of blood films to exclude relapsing fever and malaria. The fact that the onset of typhus or any other intercurrent infection might cause malarial parasites to appear in the peripheral circulation in a quiescent malarial subject and thereby confuse the diagnosis had to be borne in mind. In the last quarter of 1918, when typhus fever again appeared, an opportunity was afforded of supplementing the purely exclusive methods of blood culture and microscopic examination of films by the employment of the Weil-Felix reaction. A culture of the proteus strain X 19, now used almost universally for this test, was available. There was no question but that, although the actual *materies morbi* of typhus fever was still unsettled, the bacteriologist was in a position to give valuable help of a positive nature in its diagnosis. The tests carried out at the Central Laboratory, Baghdad, by Captain T. R. Bowen, R.A.M.C., under the superintendence of Major F. P. Mackie, I.M.S., had impressed him greatly and had almost persuaded him that an organism which reacted so strongly and regularly to the sera of typhus patients could be no other than the actual *materies morbi*. This was highly improbable, however, and the phenomenon was capable of other explanation.

New Organisms.

As early as 1883 there was a record of the finding of motile spirilla in typhus blood, and since then scarcely a year had passed without some claimant coming forward with a new organism. Cocci of various kinds, including streptococci, bacilli, diplobacilli, spirilla, spirochætes, and also organisms of a more protozoal structure had been incriminated. Doubtless many of the findings were ordinary contaminations, yet the fact had to be reckoned with that at least some of the organisms recovered from typhus cases represented genuine blood invaders. Of the more recent of these might be quoted the cocci recovered by W. J. Wilson, of Belfast, in 1910. Very similar cocci of the *S. viridans* type were recovered by Penfold from the blood of typhus cases in Ireland in 1916, and also by Miss Muriel Robertson. Penfold had been able to cultivate the same coccus from monkeys inoculated with typhus blood, and with pure cultures of this coccus he noted a pyrexial phase in inoculated monkeys. Miss Robertson immunised monkeys with the coccus, but they did not prove to be immune when tested with virulent typhus blood, and reacted similarly to the untreated controls. In 1909 Horiuche recovered from the urine of some cases of typhus in Manchuria an organism which was agglutinated by the sera of typhus patients only, and that in high dilution. Wilson's experience in 1910 was similar. In 1916 Weil and Felix recovered from the urine of a typhus patient organisms of the proteus type, which were agglutinated in high dilution by typhus sera only. Later they recovered another proteus which they named X 19, and which was found to act still better in this test. During the last three years an enormous literature had accumulated on the diagnostic value of what was now called the Weil-Felix reaction, and its probable significance. Of its diagnostic value no doubts had been uttered. The serum of 90 to 100 per cent. of typhus cases would give this reaction in high dilution at some stage of the disease. Reactions had been obtained with dilutions up to 1 in 30,000, whilst control sera either did not agglutinate the organism at all, or, in a small proportion only, reacted with it in dilutions not exceeding 1 in 50. About 50 per cent. of cases would give the reaction by the fifth day, while by the tenth day practically all cases would react. A negative reaction was sufficient to suggest a diagnosis other than typhus fever.

Proteus X 19 had recently been recovered from the blood in a varying percentage of cases. Thus Zeiss got proteus from the blood in 19 out of 278 cases, but never from the blood in 167 examples of other diseases. Dienès got proteus from the blood in 30 per cent. of 14 cases. Others had been less fortunate, and Felix, in Asia Minor, failed to recover the organism in a single case of 250. Proteus X 19 was highly pathogenic to guinea-pigs and mice, but did not produce in these animals the pyrexial phase which follows the inoculation of typhus blood. Nor did immunisation with proteus render animals immune to typhus blood. The Weil-Felix reaction came most probably into the category of paragglutination phenomena from which, however, it differed in one material point—the permanence of the agglutinability of proteus with typhus sera in spite of long-continued laboratory growth. One could only assume that a particular proteus had become so serum-impressed as to retain its agglutinability for an indefinite period, and to serve as a test organism for the polyagglutinating capacity of typhus serum. While knowledge had increased of typhus diagnosis it had also increased of the part played by the louse. If the louse be admitted to be the only vector, it was necessary in the future to demonstrate any presumed typhus organism in the louse or its excreta. Accordingly the adherents of Rabinowitsch's organism, of Plotz's anaerobic organism, and of proteus X 19 had been coming forward to identify their respective organisms with the Rickettsia bodies discovered in infected louse excreta by Ricketts in 1909 and later confirmed by Rocha-Lima and Prowazek in 1916. But the Rickettsia bodies had not yet been grown, though if they had anything in common with the organisms identified with them they should have been readily cultivated.

Conclusions of French and American Investigators.

Dr. J. A. ARKWRIGHT, in the course of a review of the bacteriology of typhus fever, said that the French investigators in Tunis and the Americans working with the Mexican and New York forms of the disease arrived at the following conclusions:—

(1) The blood of human cases of typhus is infective for monkeys, and the disease can be transmitted by the blood from monkey to monkey, from monkey to guinea-pig, from guinea-pig to guinea-pig, and back again to the monkey after many passages through the guinea-pig.

(2) The virus can be conveyed by the plasma and by the serum obtained by centrifuging defibrinated blood, but not so readily by clear serum taken off the clot.

(3) The virus is destroyed by heating to 55° C. for 15 minutes and by drying in vacuo over sulphuric acid.

(4) It does not pass through an efficient Berkefeld filter in sufficient amount to cause an infection.

(5) Lice which have been infected on a human case or on a monkey can apparently convey the disease to a monkey by their bites, and inoculation of their gut contents by scarification or subcutaneous injection will infect a monkey or a guinea-pig.

(6) Typhus may be transmitted experimentally by either pediculus corporis or pediculus capitis.

(7) The experiments of Ricketts and Wilder point to a necessary incubation period in the louse before it becomes infective, but the evidence is not very complete, and at this period different observers did not agree on this point.

Cantacuzene had recently narrated instances of 15 medical men who had all been infected by the bites of one, or at most two, lice, the exact time of the biting having been accurately ascertained in some instances. The incubation period was usually 8 to 10 days, but in one case as long as 23.

The Virus of Typhus in the Louse.

The most advanced phase in our information about the virus of typhus was concerned with it as it exists in the louse. Very small bacillus-like bodies known as *Rickettsia prowazeki* were first described by H. T. Ricketts and Russell M. Wilder in April, 1910, as occurring in the blood of patients and in the body of the louse. In blood films of patients taken on the seventh to twelfth day of the disease they invariably found a short bacillus of the hæmorrhagic septicæmia type, which stained either solid or only at the poles. They estimated that they were between 300 and 2000 in 1 c.cm. of blood. In the fæces and intestine of the louse they were much more numerous. They also described and differentiated these organisms from other bacteria found in smears of lice. Our knowledge of these minute organisms had been largely advanced by Rocha-Lima in Poland in 1914–15, who first worked with Prowazek in Serbia in 1913, where both caught typhus fever, of which Prowazek died. Rocha-Lima rediscovered these forms in the louse, and Prowazek considered that they were the same that he had seen and described in the blood of patients when working at typhus in Poland in 1913. Rocha-Lima had two great advantages, for he was associated with a highly skilled entomologist, Sikora, who had made a speciality of pediculi, and he had the additional knowledge, due to Nicolle, that most guinea-pigs are susceptible to the virus of typhus. He was primarily a protozoologist, and was inclined to regard the organisms as protozoa. By collecting lice from patients and other persons, and also by feeding normal lice from Hamburg and then examining them microscopically by means of sections and smears of the gut, and also by inoculating guinea-pigs with their gut contents, he was able to determine the following points:—

(1) When pediculi were fed for from five to eight days on a typhus patient, preferably between the second and tenth day of the illness, a proportion of them were found to contain very large numbers of Rickettsia bodies, often in apparently pure culture, and these were found, not only in the lumen of the gut, but also in the epithelium of the mid-gut in masses. He found that 95 per cent. of the lice from advanced cases of the disease were infected. Before the fourth or

ifth day from the commencement of feeding the lice did not show these forms.

(2) The lice so infected were able to give the disease to guinea-pigs when crushed and injected subcutaneously. Even part of the gut of one louse was sufficient.

(3) Lice fed after the fall of temperature did not contain these bodies, and were not infective.

(4) Lice kept at a temperature of 23° C. neither became infective nor contained Rickettsia bodies, whilst a temperature of 32°–34° C. was the optimum for producing both these conditions.

(5) For lice to become infected it was not necessary that they should continue to feed on a febrile patient. If after one or two feeds in one day on a patient at the height of the disease the lice were subsequently fed on a convalescent, they became infected, and the convalescents were immune and ran no risk of infection.

(6) If lice were fed daily on a patient the proportion of those infected rose as time went on, and almost all were infected after ten days. Lice once infected usually remained so until they died, but sometimes appeared to get rid of the infection and recovered. The lice used were derived from a source free from typhus or were bred in captivity and previously fed only on healthy persons.

(7) He was unable to demonstrate the inheritance of infectivity or of the Rickettsia bodies in the louse, except in one experiment which he thought was successful.

(8) No attempts to cultivate the Rickettsia bodies from pediculi had succeeded.

Other workers had confirmed these results with some divergence of opinion in matters of detail. He found that lice fed on healthy men or on those suffering from other diseases rarely showed Rickettsia and never the intracellular form.

The most serious criticism of the significance of the rôle played by Rickettsia came in part from those who were most impressed by its importance, for Ricketts, Rocha-Lima, and Otto and Dietrich all found these bodies or forms suggesting their presence in lice believed to be normal, though they are usually described as rare. Nicolle and Brumpt, however, believed that they occurred so frequently in controls as to discount their importance. This conflicting testimony can be explained by the great difficulty or even impossibility of being sure of the nature of very small diplococcal bodies seen in a film when only a few are present, and by the existence of at least two kinds in human lice. These have been named by Rocha-Lima *R. prowazeki* and *R. quintana*, the latter being as clearly and closely associated with trench fever as is the former with typhus. It seemed very probable that the irregularities in the occurrence of Rickettsia could be attributed to trench fever infections. Dr. Arkwright had been able to see some patients with typhus in Ireland, and to collect lice from their clothes and feed normal lice on them. Rickettsia were found in the lice and their excreta in a few specimens by him in collaboration with Bacot and Duncan, but no doubt the lice were kept at too low a temperature for free development of Rickettsia. However, a monkey was infected by injecting 20 lice, and the infection was passed on to two other monkeys and to guinea-pigs. It was also shown that the monkey-louse became infected. Of 93 specimens from 3 infected monkeys, 38·7 per cent. were infected, and of over 100 from healthy monkeys none showed these forms.

Microscopical Pathology of Typhus.

An interesting observation had recently been made in the microscopical pathology of typhus. Fraenkel, Jaffe, and others had described minute nodules of cellular infiltration in the course of the arterioles, and changes in their vessel walls in various organs, in the skin lesions, and especially in the mid-brain, frozen sections of which had been stated to be sufficient to establish the diagnosis. Rickettsia had been described in these nodules. Otto and Dietrich had described agglutination of Rickettsia by the blood of typhus convalescents. Experiments with a view to producing a prophylactic vaccine or therapeutic serum had not yet given very striking results, though Nicolle and Blaizot had immunised horses with extracts of organs of infected guinea-pigs. Vaccination experiments with the heated blood of patients or with virus from other sources treated to make it innocuous, had not given encouraging results.

Among subsequent speakers Dr. WILLIAM HUNTER spoke of the accurate description of typhus fever given by Murchison, who had got so near to the mode of transmission as to recognise that actual touch was necessary. He had stated that the incubation period was from 10 to 12 days. In Serbia a remarkable accession of cases occurred exactly on the eleventh day after movement of troops was begun and as remarkable a subsidence on the same day after movement was restricted.

Dr. A. G. PHEAR said that when visiting hospitals in Southern Russia, Northern Persia, and the Caucasus, he found that no treatment was considered necessary for relapsing fever, all the patients getting well without it. This pointed to a relative immunity in those peoples among whom the disease was endemic.

SECTION OF SURGERY.

CONGENITAL DIVERTICULUM OF THE COLON.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 4th, Sir JOHN BLAND-SUTTON, the President, being in the chair, when Mr. GARNETT WRIGHT read a paper on Congenital Diverticulum of the Colon. Congenital diverticula were, he said, extremely rare in connexion with the large bowel, and he thought that a case which had been under his care was worthy of record as being almost unique.

The patient was a married woman, aged 27. She had suffered from constipation and abdominal pains ever since she could remember. The griping pains and constipation had steadily increased, and for two or three days before admission to hospital constipation had been absolute and she had vomited once or twice. On examination there was definite visible peristalsis, and although the bowels were evacuated the griping pains and visible peristalsis continued. The abdomen was opened and the whole of the large intestine was found to be greatly dilated and the meso-sigmoid occupied by a cystic swelling. A longitudinal band was found to bifurcate at the commencement of the sigmoid colon, and it was evident that a diverticulum was originating at this point. It left the meso-sigmoid at its lower end and turned upwards behind the posterior parietal peritoneum, and ended in a large sac on the posterior abdominal wall behind the stomach. Complete colectomy was performed, and the ileum united to the lower part of the ileo-pelvic colon by lateral anastomosis. The patient appeared to be progressing fairly satisfactorily until the ninth day, when the temperature fell to 97° F. and vomiting set in. The abdomen was reopened, when it was found that suppuration had occurred in the anastomosis, which had given way. The patient died that evening.

Description of Specimen.

The specimen removed consisted of the termination of the ileum and the large intestine from the cæcum to the upper end of the rectum, together with the diverticulum. The colon was in a condition of moderate idiopathic dilatation, and in the recent state measured 8 ft. in length. The diverticulum, which when fresh was 37 in. long, commenced at the upper end of the sigmoid loop of the colon, running at an acute angle downwards, and entering between the layers of the meso-sigmoid. Here it occupied the concavity of the sigmoid colon and became of a very large size, being much greater in diameter than the bowel. On reaching the end of the sigmoid loop the diverticulum separated from the colon, to which up to now it was intimately adherent, and, narrowing abruptly, passed from between the layers of the meso-sigmoid to lie behind the posterior parietal peritoneum. Here it turned upwards and expanded into a large blind sac, reaching a position on the posterior abdominal wall behind the stomach, and ending in a small button-like projection. In the recent state the circumference of this portion of the diverticulum was 17 in. To facilitate description it may be said that the first part of the diverticulum was about 6 in. long; the second part was that which lay between the leaves of the meso-sigmoid; the third part was a blind sac, entirely retro-peritoneal in position.

The connexion of the tæniæ with the diverticulum was very interesting. The tænia libera was continued from the descending colon into the sigmoid, and did not reach the diverticulum at all. The tænia omentalis bifurcated at the commencement of the diverticulum, one limb descending into the sigmoid and the other running off at an angle to reach the anterior surface of the diverticulum. Here it gradually widened out, losing its band-like appearance, and forming a fairly uniform longitudinal coat, though the main mass of the fibres could still be seen near the convexity of the diverticulum. The tænia mesenterica was continued from the descending colon directly into the posterior surface of the diverticulum, and widened out in a similar manner to the band on the anterior surface. It had no connexion with the sigmoid colon. The blood-supply of the diverticulum was derived from the inferior mesenteric artery, which was of large size.

When the peritoneal sac was dissected away it was seen that the colon and the first and second parts of the diverticulum were intimately blended. Muscular bands could be seen running from one to the other; the septum between the two was common to both and consisted of circular muscle fibres with mucous membrane on each side.

Structure of the Diverticulum.

The muscular coats consisted of an outer longitudinal, which, in the first part, was represented by the tæniæ above described, and an inner layer of circular fibres. Where the colon and diverticulum fused only circular fibres could be distinguished. The inner coat consisted of mucous membrane of the usual large intestine type, the epithelial lining being continued into the button-like projection in the apex of the blind sac. From the anatomical structure of the diverticulum it was obviously a congenital abnormality of the hind gut. The blood-supply from the inferior mesenteric vessels proved that the structure was a portion of the hind gut, while nothing but a developmental error could explain the intimate connexion between it and the colon. Professor Arthur Keith had pointed out to him (Mr. Wright) that in the hyrax double colonic cæca were normally present, arising from the transverse colon, in addition to the usually placed cæca. The bands on the colon and diverticulum combined represented the bands of a single primitive intestinal tube. It would appear that the original error in development had been in the form of a split in the primitive hind gut, the septum being placed coronally and running from the centre of the primitive tænia omentalis to the opposite side of the canals. If this were so, it seemed to him to be against the view that the diverticulum in this case was a throw-back to the colonic cæca of the hyrax, as these presumably arose by lateral bands from the intestinal canal. He could arrive at no satisfactory explanation of the phenomenon.

Literature of the Subject.

He had been unable to find more than one or two cases in the literature of a similar nature.

Meckel[1] mentioned a case of a fœtus with two cæca described by Boerhaven in 1757. Grawitz[2] described the case of a man of 55 who died of peritonitis due to intestinal obstruction, in whom a right inguinal hernial sac was occupied by a diverticulum arising from the middle of the ascending colon. It consisted of a double loop of bowel, opening by a common orifice into the ascending colon. The two loops were separated at the fundus, but were fused near the neck of the diverticulum, having an imperfect septum of mucous membrane only between them at this point. Grawitz considered that this diverticulum might have been formed from a loop of bowel being caught in the hernial sac, and a secondary fusion and breaking through of the lumen at the site of constriction.

Lockwood[3] described a case of double descending colon where the lower ends of both limbs were lost in a mass of carcinoma, but gave no anatomical details.

Hedinger[4] described a post-mortem examination on a newly-born child in whom the distal third of the appendix was thickened and nodular owing to numerous small diverticula of the mucosa, some of which reached the muscularis mucosæ only, while others extended through it and produced projections of the serous coat. He considered that these diverticula were congenital.

Black[5] described an enormous multilocular cystic tumour growing from the serosa at the tip of a diverticulum which sprang from the junction of the rectum and sigmoid. He gave no details as to the structure of the diverticulum, but considered it congenital in origin.

Discussion.

Professor ARTHUR KEITH said that he agreed with Mr. Wright in regarding the abnormality as being the result of a developmental reduplication or splitting of the sigmoid colon. Splitting or dichotomy of the buccal or of the rectal ends of the alimentary tract was known to occur, but there had been no clear recognition that a developmental cleavage could affect a limited and intermediate tract such as the transverse colon or sigmoid. Mr. Wright's specimen might be regarded as an example of this exceedingly uncommon type of malformation. Various forms of cleavage or septal formation were known to occur during the development of the alimentary tract of the embryo. The foregut was cleft horizontally or coronally, so that the ventral compartment became the trachea, while the dorsal part formed the œsophagus. Cleavage might occur abnormally, so that the first part of the œsophagus ended blindly, while the second part sprang from the bifurcation of the trachea. Such was not an uncommon congenital abnormality of the œsophagus. The second part of the duodenum might be the seat of another kind of septal malformation—the septum lying transversely across and completely occluding the lumen of the bowel. Another type was represented by a specimen in the Museum of the Royal College of Surgeons. In this specimen a piece of small bowel from an ox had set side by side with it a long sausage-shaped cyst, 17 inches in length, exactly similar to the small bowel in structure, save that it was lined by stratified epithelium. In this case the cleavage of the bowel had apparently taken place in a sagittal plane, for both bowel and cyst lie side by side and are suspended at the free margin of the common mesentery. In Mr. Wright's specimen the cleavage had been on a coronal plane, the primitive sigmoid being split so as to form a dorsal or abnormal sigmoid and a ventral or normal sigmoid colon. Thus we saw that abnormal cleavage might affect several parts of the alimentary tract of the embryo and might take place in a sagittal, coronal, or transverse plane. It must be remembered that a mere point of adhesion between opposite walls of the embryonic gut would, when the embryonic gut was drawn out to form the adult bowel, become a long septum or cleft. In trying to explain such a malformation as had been shown by Mr. Wright it was vain to seek light from comparative anatomy. In no animal whatsoever was duplication of the sigmoid a normal occurrence.

The abnormal parasigmoid of Mr. Wright's case showed a remarkable condition of hypertrophy. The muscular coats had evidently striven to force the fæcal contents out at the cæcal end of the parasigmoid—at least the degree of hypertrophy increased in the passage from the open mouth to the closed end of the abnormal bowel. At the open or proximal end of the parasigmoid the mucous or glandular coat measured 0·8 mm. in thickness; in the neighbouring part of the normal colon this coat had a thickness of 0·25 mm. At the same sites the muscular coats measured 0·95 mm. (0·8 mm. circular coat, 0·15 mm. longitudinal) in the first, and 0·25 mm. (0·2 mm. circular coat, 0·06 mm. longitudinal) in the second. At the distal or cæcal end of the abnormal sigmoid the mucous membrane measured 0·6 mm., and was provided with numerous solitary follicles. The muscular coats at this point measured 3·7 mm.—14 times the normal thickness. The inner or circular coat measured 2·2 mm., and the outer or longitudinal 1·5 mm. The mucous coat was bound rather firmly to the muscular coat, the submucous tissue being densely packed and much reduced in amount. At the cæcal end the muscularis mucosæ was 0·140 mm. in thickness—almost as thick as the outer muscular coats of a normal sigmoid. The inner circular and outer longitudinal coats of the muscularis mucosæ could be clearly distinguished. Throughout the greater length of the parasigmoid there was hardly more than a trace of Auerbach's (myenteric) plexus. This was particularly the case where the muscular hypertrophy was greatest. We know that addition of new muscular fibres in the embryonic gut takes place from the stratum in which Auerbach's plexus lies. It was a remarkable fact that with such muscular hypertrophy as was seen in the distal half of the abnormal parasigmoid Auerbach's plexus should have almost disappeared. Very large isolated ganglion cells occurred at various sites in both circular and longitudinal coats.

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[1] Meckel: Tab. Anatomico-Pathologie, Tab. xiii., Fig. 4, p. 13.

[2] Grawitz: Virchow's Archiv, lxviii., p. 506.

[3] Lockwood: Brit. Med. Jour., 1882.

[4] Hedinger: Virchow's Archiv, 1904, clxxviii., pp. 24–43.

[5] Black: Surg., Gynecol., and Obstet., 1919, vol. xxviii., p. 473.

The PRESIDENT said that on reading Mr. Wright's account of this rare diverticulum he at once suspected that it was associated with malformation of the colon. The suspicion was converted into a certainty on examining the specimen. It was an example of doubling of the large intestine. The enormous size and the thickness of the affected section were explained by the fact that it served for some years as a reservoir of fæcal material, much in the same way that a section of large intestine served for the retention and accumulation of a retrograde flow of fæces after it had been put out of action by an ileo-colic anastomosis. The portion of the colon thus put out of action in many cases became enormously distended and its walls thickened. The distension and thickening were only equalled by the alterations that took place in the stomach when the pylorus was the seat of chronic, non-cancerous, obstruction. Doubling of the large intestine was a rare malformation. An accessible record would be found in the *Glasgow Medical Journal*, 1912. It was carefully described by Mr. A. Blair Aitken, and it was illustrated by good figures. The transverse section of the pelvic colon resembled the barrels of a double-barrelled gun. Roux de Brignolles discovered a double pelvic colon whilst operating for appendicitis.[6]

APPENDICECTOMY BY A NEW ROUTE.

Mr. R. H. ANGLIN WHITELOCKE read a paper on Appendicectomy by a New Route, in which he described an operation designed for the removal of the vermiform appendix through the right iliac fossa in cases where no general exploration of the abdominal cavity was called for—i.e., in acute cases rather than chronic.

The Incision.

The incision, usually 2½ inches in length, is made ½ inch or less internal or medial to, and parallel with, the anterior superior spine of the ilium, or as near to it as practicable. The anterior superior spine, a constant and definite landmark, easily felt or demonstrated, however obese the patient, forms the centre. The cut is carried above and below this point to an equal extent, and parallel with the iliac crest and spine and the attached Poupart's ligament. The cut at once divides the skin, subcutaneous fascia, and aponeurosis of the external oblique muscles. The fibres of the internal oblique muscle are then incised, taking for a guide the white line which passes almost horizontally across the muscle from the anterior superior spine to the middle line of the body; it is bloodless, and indicates the natural division of the muscle into an upper and a lower section. The transversalis muscle is similarly treated, and through the subjacent transversalis fascia the exploring finger ascertains the precise condition of the underlying peritoneum. In uncomplicated cases, and whenever there is no evidence of suppuration, this fascia, together with the peritoneum, are divided in a direction parallel to the skin incision, medial or internal to the reflexion of the parietal peritoneum on to the iliac fossa, deep to and parallel with Poupart's ligament. Where an abscess is present or suspected it is safer to turn the peritoneum inwards or medial-wards from its reflexion behind Poupart's ligament, and to open it posteriorly from the iliac fossa. When the abdomen is opened the viscus first seen is generally (86 per cent. of cases noted) large intestine, either the first part of the ascending colon or, less frequently, the cæcum.

In a simple or "interval" case the appendix is removed outside the abdomen. The wound is closed in layers with catgut sutures, the skin being brought together with silkworm-gut ligatures *interrupted* so as to allow of the escape of serum. Only a few sutures are required, since there is but little strain on the edges and the muscles tend to fall together of their own accord. When the appendix is so adherent that it cannot be delivered readily with the cæcum through the wound, as in cases of chronic abscess, the safest and easiest plan is to deal with it as a foreign body by detaching the cæcum from its root and burying the stump; the adherent and detached appendix is then seized at its divided end with forceps and pulled gently upon until it comes away. When the inflamed viscus lies in retro-cæcal or retro-peritoneal positions the muscular and mucous portions of the organ may be pulled out with ease from the inflamed and thickened peritoneal sheath, a firm rubber tube of sufficient calibre then being inserted into the track. Drainage is now seldom used except in cases of abscess. Removal of the appendix as a routine, and with it the focus of sepsis and infection, is sound, for it minimises the immediate risks and any tendency to relapse, shortens the period of drainage, or enables drainage to be dispensed with altogether.

Advantages of the Method.

Anatomical.—The anterior superior spine of the ilium is an unfailing landmark, which can readily be felt in all circumstances of life. An incision or scar running through the external oblique muscle within an inch of, and parallel with, its bony origin is practically free from strain, since it lies in a natural groove or fold of the body. The deep muscles—internal oblique and transversalis—are divided where their fibres are thickest and strongest and most capable of bearing strain—i.e., along the line which indicates their natural division into an upper and lower section. As a rule, no blood-vessels are present to require ligature, nor is any muscle nerve liable to be divided. The parietal peritoneum is here thick and taut, and well supported by extraperitoneal fat at its line of reflexion to the iliac fossa, hence it is less likely to approach the skin wound and so predispose to hernia, even after prolonged drainage. Such approximation of the peritoneum towards the skin through the muscles is perhaps the most important predisposing cause of ventral or other forms of hernia. The ascending colon or cæcum is situated in the direct route, so that the surgeon may rely on discovering the appendix at its origin free from the viscus, no matter where its body lies.

Surgical advantages.—The ilio-spinal approach to a great extent prevents the risk of ventral hernia, since the two main factors concerned in the process—pouching of the parietal peritoneum and muscle strain—are almost wholly eliminated or rendered improbable by the anatomical facts already described. The ilio-inguinal route avoids the necessity of involving the general peritoneal cavity while dealing with the appendix. By this route the peritoneum may be opened and an abscess easily reached and evacuated through the iliac fossa without the difficulties and dangers of soiling or infecting the general peritoneal cavity. The route is, therefore, unquestionably safer and in harmony with the principles of surgery. The appendix may invariably be removed at the time of the operation; the necessity for a subsequent operation is thus obviated. When drainage is established through the iliac fossa to the stump of the appendix or even into the pelvis itself, such drainage is simpler and safer than when an abscess is drained through the general peritoneal cavity; an extruded fæcal concretion may also be more readily found and safely extracted. The procedure is simpler and takes less time than the older methods. The ilio-inguinal route of approach, whether for exploration or removal, enables the surgeon to make a fair estimate of the gravity of the case before the peritoneum is opened. When the transversalis fascia is reached, digital palpation makes it possible to determine not only the presence but the precise situation of an abscess. The extra-peritoneal fat in cases of abscess is often considerably thickened and œdematous and offers distinct resistance even in the early stages; hence if the fingers are gently pressed through the fat against the peritoneum, the resistance encountered enables the surgeon to form some idea as to whether the abscess is immediately subjacent or has passed upwards behind or to the outer side of the colon, or downwards and forwards into the pelvis. When the resistance is slight the peritonitis is almost certainly localised, and the peritoneum may be incised at a point *anterior and internal* or medial to its anatomical line of reflexion, so that the general cavity can be opened with but little risk. On the other hand, if the resistance is such as to justify the suspicion of abscess it is safer to turn the peritoneal fold inwards and forwards, to open the abscess *from behind* through the iliac fossa, and then to deal with the appendix or its concretion, and to establish drainage through the opening.

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[6] Ann. Internat. de Chir. Gastro-intest., Paris, 1914, viii., 19–23. The President had been unable to obtain this journal.

Clinical advantages.—The principal gain lies in the lessening of the period of convalescence. Prolonged drainage is seldom needed, since the actual source of disease is removed at the time, and consequently recovery is usually rapid. When no drainage is necessary the patient may be allowed out of bed as soon as the wound is quite healed (usually from the tenth to twelfth day), and is able to walk soon after.

Disadvantages of the Method.

No satisfactory exploration of the contents of the abdominal cavity can be made. The operation, however, is recommended for the removal of the appendix and not for general exploration. Laparotomy and exploration of the abdomen may be superadded by means of another incision and without detriment. It may be urged that when the mischief in the appendix is insufficient to account for the symptoms entirely, the return of the cæcum after removal of the appendix may be difficult through the small peritoneal opening. If, however, care is taken to make a free opening through the peritoneum to begin with, if the edges are well retracted, and if the exposed bowel is kept warm the difficulty will rarely be formidable and never insuperable. The provision of adequate drainage is felt to be a difficulty with those surgeons who believe that gravity plays an important rôle in abdominal drainage. An abscess in Douglas's pouch may, however, be quite as efficiently drained through the iliac fossa as through the central abdomen, provided that a sufficiently patent though pliable rubber tube is used.

Conclusions.

The operation had been practised by Mr. Whitelocke for over 12 years, and used almost exclusively during the last eight years. Out of 843 consecutive operations performed at all stages of the disease, whether simple or complicated, and at all ages ranging from 3 to 79 in both sexes, there had been in all 18 fatal cases, yielding a mortality rate of 2·25 per cent. In a recent sequence of 117 cases there had been no death, whilst the 118th and 119th had been unsuccessful. As regards remote sequelæ not a single case of hernia or abnormally weak scar had occurred.

Discussion on Mr. Whitelocke's Paper.

In the course of the discussion Mr. H. J. PATERSON said that he thought the small incision was a drawback. It was impossible to obtain adequate exposure of the abdominal contents.

Mr. W. MCADAM ECCLES said that the incision would be disastrous in a case of general peritonitis. Otherwise the method had its value. He agreed as to the occurrence of herniæ after division of the twelfth dorsal and first lumbar nerves.

Mr. R. P. ROWLANDS said that pulmonary embolism was most likely to occur from the 9th to 16th day after operation. He now usually got his patients up on the fifth day. He used to have a case of pulmonary embolism about once a year. He had not now had a case for seven years.

Mr. C. A. R. NITCH, Mr. RAYMOND JOHNSON, and the PRESIDENT also spoke, and Mr. WHITELOCKE briefly replied.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

EXHIBITION OF CASES.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 3rd, Mr. J. MUIRHEAD LITTLE, the President, being in the chair.

Double Ankylosis of the Hip.

Mr. R. C. ELMSLIE showed a case of Double Ankylosis of the Hip in a man aged 51. The condition started in 1917 with an attack of rheumatism. Ankylosis of both hips was now almost complete. He brought the case forward in order to elicit the opinions of the members as to treatment. Excision or arthroplasty was the choice, but he himself favoured excision, as after arthroplasty the flap frequently became absorbed and the condition of ankylosis recurred.

The PRESIDENT agreed that excision was the form of treatment to be preferred.

Mr. E. LAMING EVANS suggested excision of the head of the femur and perhaps a third to a half of the neck, and displacement of the stump upwards so as to get a movable false joint. Such would be better than the discomfort from which the man now suffered, both in walking and in the ordinary functions of life.

Mr. ELMSLIE said that he believed much of the disability which followed excision was due to inefficient after-treatment. An excised hip was, he thought, better than one which was chronically painful, and better than having both joints stiff.

Congenital Absence of the Ulna.

Mr. A. S. BLUNDELL BANKART showed a case of Congenital Absence of the Ulna in a child aged 10 weeks. The child was one of twins; the other was said by the mother to be normal. The right ulna was absent except for a minute portion at the elbow. The hand was slightly deflected to the ulnar side. There was a dimple in the skin over the radius. The right elbow-joint was ankylosed. There was congenital contracture of the right shoulder-joint, the upper extremity of the humerus being adducted and rotated inwards. The whole limb was smaller than the left.

The PRESIDENT remarked on the extreme rarity of absence of the ulna.

PNEUMATIC PADS IN THE TREATMENT OF UNUNITED FRACTURES OF THE HUMERUS.

Mr. C. MAX PAGE read a paper on Pneumatic Pads and their Application to the Treatment of Ununited Fractures of the Humerus. He pointed out that the principle of applying a slow acting reducing force held an important position in the correction of most deformities. A force of this kind was generally obtained from the elastic recoil of the tissues against some form of fixed splint. When some degree of reduction had been effected by such means an adjustment, or often replacement, of the apparatus became necessary in order to "recharge the recoil spring." It appeared to him that in some cases the use of pneumatic pressure could effectively add to the reducing force and increase its range of action. He had first employed pneumatic pads in 1913 in conjunction with corrective plaster jackets applied after the Abbott method. The air pad replaced the felt packing between the jacket and convexities it was desired to reduce. This application of the pads was certainly effective, and considerably increased the amount of reduction which could be effected by one jacket.

The pads were made from sections of motor inner tubes of a diameter of 2½ to 4½ inches. Convenient lengths varied from 3 to 9 inches. The ends of the section of tubing were vulcanised, and an ordinary bicycle valve was set in at a convenient position. The tube was enclosed in a fabric case of such a size as to limit its undue expansion when inflated. Pads made in this way by a competent tyre mechanic would retain pressure up to 20 or 30 lb. to the square inch, in the same degree as a bicycle tyre. These pads when inflated became cylindrical in form, and so would exert pressure evenly along the line of their axis. Clearly, however, by placing the pads between two plaster casings, ressure could be distributed as required for any special urpose.

He had recently employed these pads in the treatnent of certain ununited fractures of the humerus, the im being to exert a graduated compression at the seat f fracture along the long axis of the bone. He conidered that fractures of this bone often developed the ondition of delayed or non-union on account of overxtension by the weight of the limb or from the absence f any pressure along the long axis of the bone. Pressure of this kind was undoubtedly of value in timulating union in fractures of the tibia or femur, and there seemed to be no reason why the method should not be equally effectual when applied to the upper extremity.

The method of application was shown in the two cases of ununited humerus brought before the society, and was as follows. A plaster case is applied over the shoulder, arm, and forearm of the affected side, usually with the arm rigidly abducted, and with the elbow flexed to a right angle. A small pneumatic pad is placed under the plaster beneath the elbow, which is covered with a felt pad. When the plaster case is hard the pad is inflated to the degree necessary to push the lower fragment upwards in the axis of the bone against the upper fragment, the casing as a whole maintaining the lateral stability of the arm. He had not yet had sufficient experience of the final results to define the limitations of the method, but he thought that it afforded a simple means of applying to the humerus a method of treatment which had long been proved effectual in many cases of delayed union in the tibia.

In reply to a question by Mr. ELMSLIE, Mr. PAGE said that there was no doubt that a sufficient range of movement could be obtained by the inflation of the pad. The extent of this was determined by the diameter of the casing enclosing the tube; this could be varied as required, but was usually 2½ inches.

In reply to a question by Mr. EVANS, he said that he had seen pressure sores produced by the use of the pads employed inside spinal jackets, but not in cases of fracture of the humerus. He considered they could be avoided by reasonable precautions in the use of felt and in avoiding excessive inflation of the tube. It should be remembered that a pad could be inflated so as to exert a pressure of over 30 lb. to the square inch, when it would become as hard and resistant as a bicycle tyre.

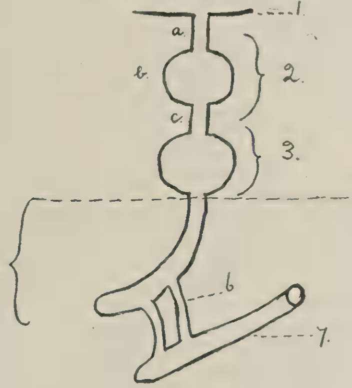
SECTION OF OBSTETRICS AND GYNÆCOLOGY.

ORIGIN OF TUMOURS OF THE OVARY.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 5th, Mr. J. D. MALCOLM, the President, being in the chair.

An abstract of a paper by Dr. JAMES GOODALL on the Origin of Tumours of the Ovary was read by Dr. CUTHBERT LOCKYER, who said that in order to determine the origin of epithelial tumours of the ovary Dr. Goodall had made a study of the embryology of the organ so as to obtain first-hand knowledge of the origin and development of the epithelial structures found therein. A study of comparative embryology was necessary, and his work was based upon sections, both serial and non-serial, from the ovaries of 127 individuals of all ages, including serial sections of five human embryos. The comparative study covered some 15,000 sections from the cow, sheep, cat, mouse, rabbit, guinea-pig, and dog. Dr. Goodall laid great stress upon the importance of working with serial sections, and found that the most serviceable ovaries for study were those of the cow and dog. The close resemblance, from the developmental point of view between the mammalian ovary and testis soon became apparent to him, and he stated that there was nothing in the testicle that had not had at some time in embryonic life its homologue in the ovary. Of the permanent testicular structures, some in the ovary were transitory and disappeared completely, others degenerated but did not disappear, others remained but were modified to suit a modified function. The ovary of one mammal differed from that of another mammal in the amount of atrophy that ensued after the organ had reached its full structural development. The ovary of the cow and that of the bitch suffered the least amount of atrophy. In the ovary of the bitch was found an abundance of epithelial structures. In the medulla and among the great bloodvessels was the rete ovarii, corresponding to the rete testis. According to Dr. Goodall it is an irregular tortuous gland-like structure, with folded mucosa, lined with columnar epithelium. In the human subject it is of variable size and is a fœtal remnant, whose atrophy up to complete disappearance is quite the exception, though, at times, it is so diminutive as easily to be overlooked. Its total disappearance has often been noticed in sheep. Communicating with the rete ovarii are the medullary rays. These are irregular, convoluted, epithelial structures seen either as solid cords or as tubules, which run from the cortex to the centre of the ovary, so that they join up the rete ovarii in the medulla with the surface of the ovary externally or peripherally. They present three types of cell: (1) Shaggy, filamentous cells with basal nuclei; (2) cells syncytioid in shape; (3) cubical or duct epithelium. These types pass almost imperceptibly the one into the other. Dr. Goodall had described the development of the epithelial tissues of the ovary in detail, and their study had led him to the conclusion that there is direct continuity between the surface-epithelium of the ovary and the Wolffian duct through the medium of the medullary cords or tubules, the rete ovarii, and the Wolffian glomeruli, tubules, and duct. (See diagram.)

Diagram showing the Relation of Embryonic Structures to the Adult Ovary.



a, Pflüger's tubules atrophy and disappear. *b*, Becomes the normal Graafian follicle. *c*, Atrophies more or less, may or may not be absorbed. 1, Surface of ovum. 2, Medullary ray. 3, Rete ovarii. 4, Boundary of ovary. 5, Mesosalpinx. 6, Kobelt's tubes. 7, Gartner's duct.

This continuity of epithelial structures is best seen in the embryos of the cow, in which it had been traced as follows: Firstly, the down growth of solid cords (Pflüger's cords); secondly, these cords continued downwards as medullary cords; thirdly, the canalisation of these cords to form the tubules of the medullary rays; fourthly, the continuation of these rays into the medulla as the rete ovarii; fifthly, the continuation of the rete ovarii into the mesosalpinx to join up with the Wolffian tubules and duct. Thus, at a stage in development of the ovary of the cow, the epithelial tubular system is as perfect in its continuity as it is in the testis. Dr. Goodall had pointed out that the parts of this tubular system which occupy the cortex have to do with the generation of the reproductive elements; the remoter portions are the conduits along which ova should travel if they pursued the same course as spermatozoa in the male. But, as ova are cast off into the peritoneal cavity, the efferent tubules become useless and atrophy completely or in parts. It is the atrophy which ensues in the ovary owing to the ova pursuing a different route of migration which has led to so much confusion. A study of the adult organ cannot give any connexion whatsoever between these various parts of one and the same system owing to the complete atrophy of intervening links.

Dr. Goodall had drawn up the following scheme to show the homologous parts of ovary and testis:—

Testis.	Origin.	Ovary.
Seminiferous tubules Vasa recta Rete testis	From germinal epithelium.	Pflüger's tubules. Vasa recta. Rete ovarii.
Efferent canals	From Wolffian body.	Kobelt's tubes of epoöphoron.
Vas deferens	From Wolffian duct.	Gartner's duct.

The development of ova.—Dr. Goodall had found immature ova developing in situ in the medullary rays and even in the rete ovarii, and he regarded this as incontrovertible evidence of the origin of these tubules from the germinal epithelium, and not, as some think, from the epoöphoron. The important function of oögenesis could not be assumed by the epoöphoron; it was essentially an ovarian function. In the lowest mammals oögenesis goes on throughout the whole of sexual life in the bitch, and, as regards the cow, at particular periods. In his opinion the syncytioid cells which form the second type of cell in the medullary rays of the bitch represent the initial stage in the development of ova, while the filamentous cells are the prototype of the zona radiata of the discus proligerus. Most of the immature ova thus deeply developed in the medullary rays and rete testis disappear.

Secondary invasion of cortex by germinal epithelium.—This had been found in the dog and other animals to occur in adult life. It was not thought that this late invasion resulted in the formation of ova. It had never been traced in the human subject, but it offered a ready explanation for that strong tendency in the human ovary for the germinal epithelium, when invaginated, to burrow and give rise to a typical new growth. Interstitial cells arise from the germinal epithelium. This had been proved by Dr. Janet Lane-Claypon and Dr. Jane McIlroy. Dr. Goodall had confirmed their findings.

Origin of Epithelial New Growths of the Ovary.

The second part of Dr. Goodall's paper dealt with the origin of epithelial new growths of the ovary, and in conclusion he discussed the possibility of the origin of perithelioma from the interstitial (epithelial) cells of the ovary. The author first pointed out that the present classifications of ovarian neoplasms was not histogenic, but rather topical, clinical, or histological. This plan had led to wholesale multiplication of varieties, and was to be condemned. He gave the following histogenetic classification: (*a*) Tumours arising from germinal epithelium; (*b*) tumours arising from the stroma; (*c*) tumours due to cell-inclusions. The division of tumours into cystic and solid was, according to Dr. Goodall, unscientific and impracticable. The epithelial structures in the ovary from which tumours might arise were germinal epithelium, follicular epithelium, ova, medullary cords, rete ovarii, corpora lutea, corpora atretica, and interstitial cells. Inclusion-tumours completed the list. The question to ask was whether tumours arose from each of the above. The decision rested upon preponderance of opinion and on personal observation. Excluding hydrops folliculi, Dr. Goodall did not believe that tumours could arise from Graafian follicles either in process of development or during degeneration; he had never seen granulosa cells lining a true cyst. He also thought that hydrops folliculi should not be classed as a tumour or even as a pathological state. Examination of these structures revealed no appreciable change in the ovum or in the membrana granulosa. A Graafian follicle never developed a papilloma. Passing to the consideration of the theca lutein cysts found in connexion with chorionic carcinoma, Dr. Goodall said: "These are true Graafian follicle cysts." The larger ones are devoid of an epithelial lining, since the ovum, being dead, "the membrana granulosa has no longer a raison d'être and slowly liquefies." It was inferred by Dr. Lockyer that the author accepted compound lutein cystoma as a new growth, since he called it "a true cyst." On the question whether the follicular cells of the primordial cell-nests give rise to epithelial tumours, the author stated that such had never been satisfactorily demonstrated, but he regarded this as unimportant, because he proposed to show that "epithelial tumours arise either from this primordial follicular epithelium or from invagination of the germinal epithelium. Small cysts, situated in the immediate neighbourhood of the surface epithelium, may so mimic the epithelium of the primordial follicle that it would be impossible to state, even at the early stage, that it arose from one or the other of these two sources."

The origin of tumours from the germ epithelium.—Dr. Goodall stated that *all* epithelial tumours (except those few which are classified as inclusion-tumours) were derived from this epithelium, either indirectly or directly, through the medium of structures to which it primarily gave rise. He observed: "When we realise that such widely different cells as the apparently simple interstitial cells of the ovary at one end of the list lead through many mutations, through the follicular epithelium, membrana granulosa, ciliated epithelium, mucous cells to the most highly specialised cell—the ovum—we do not cease to wonder at the multiplicity of varieties found among the ovarian grew growths." Dr. Goodall appeared to attribute the origin of epithelial growths to such germ epithelium as was represented by fœtal rests rather than to that which was normal to the mature gland—for example, the Graafian follicle and the primordial cell-nest. He stated that these remnants usually lay deep down in the medulla, often in the region of the rete ovarii, but they might be found in the deep crevices and lobulations of the surface, or again they might be represented by solid columns or real ducts which communicated with the surface. He said: "Other fœtal remnants are to be found in human ovaries of all ages," and that these may be discovered in "a segment which has remained fixed in a stage of imperfect development." Such lack of atrophy of fœtal structures was attributable to a vascular defect which the author regarded as of "common" occurrence, and the portion so influenced looked like a wedge-shaped infarct. It would be found to be "filled with epithelial elements and glands." In such a case the author found multiple cysts and, in one of the larger of these, the wall had become "very vascular and papillary ingrowths quite frequent." The cause of the arrested atrophy of the vascular change, which presumably accounted for it, was a problem, but in one case (a child of 5) the patient had died of chronic nephritis, secondary to scarlet fever, and in another (a girl of 18) the patient had died of a tumour of the brain of syphilitic origin, and the arteries showed obliterative endarteritis. Discussing the influence of perioöphoritis as a cause, the author said that, while it was a fruitful source of cyst-formation, he thought that new growths were not commonly associated with or secondary to inflammatory changes. Such cysts as formed subsided with the subsidence of the inflammation. But if an ovary contained many fœtal remnants perioöphoritis might act as the stimulus that started these into activity.

Tumours arising from ovules: the dermoid and teratomata.—The author stated: "Of late so much has been added to our knowledge ...... that to-day there is but little doubt that the ovules, by a system of parthenogenesis, are responsible for the presence of dermoids and teratomata." Loeb had found that parthenogenesis occurs in about 10 per cent. of guinea-pigs before they are 6 months old. In describing one of these cases Loeb had written: "We see in each case a chorionic vesicle with trophoblast and plasmodia and syncytia penetrating into the neighbouring tissue. There is also a structure present which is probably to be interpreted as the neural tube. As this type of growth occurs in the cortex of the ovary, where follicles are normally seen, and are found within follicle-like cavities, they can be derived only from ova developing parthenogenetically. Fertilisation can be excluded as the life-history of some of these animals is known and precluded such interpretation." Dr. Goodall admitted that, as yet, there is no adequate explanation of extragenital cases. On the question whether pseudo-mucinous cysts arise from teratomata, and therefore from the ova, Landau, Hanan, Ribbert, and Askanazy were quoted by Dr. Goodall as authorities who asserted that a pseudo-mucinous cyst found in association with a teratoma is the expression of the development of the intestinal portion of the teratoma just as the teeth are the expression of its cephalic part. Nevertheless, Dr. Goodall had found mucin mixed with sebaceous material in the contents of teratomatous cysts (dermoids), and this he had shown microscopically to be due "not to a portion of the original wall of the dermoid being a mucous surface," but to the fact that the surface covered with mucous cells had once been a cyst separate and apart and had later been incorporated. However, his conclusion was "pseudo-mucinous cysts are not only ovulogenetic but are also of germ epithelial origin."

The interstitial cells of the ovary.—These cells being regarded by Dr. Goodall as of epithelial origin, he raised the question of tumour formation from this source. He said: "I think the theory quite justified that, inasmuch as peritheliomata occupy morphologically a position midway between carcinomata and sarcomata, its relative frequency in the ovary might readily be explained by assuming that it arises from the interstitial cells which occupy a position morphologically between the epithelial and connective tissue cells."

Discussion.

Commenting on the paper he had just read, Dr. CUTHBERT LOCKYER said that the connexion between the first and second parts of the paper was not obvious at first glance, but the extensive embryological research described in Part I. had apparently been undertaken by Dr. Goodall with a view to classifying ovarian tumours histogenetically. Most people were now agreed that pseudo-mucinous cysts arose from germ epithelium. Any part of the epithelial tract that remains in the adult was excluded by Dr. Goodall from being the origin of tumours, but fœtal rests (*a* to *c* on diagram) alone give rise to new growths. According to Dr. Goodall, all the structures generally regarded as epoöphoron were really oöphoron, and the Wolffian duct exists only outside, and not at all within, the ovary. As to teratomata, the work done by Dr. Herbert Williamson had hitherto been accepted as the last word on this difficult problem. Dr. Goodall's investigations favoured the parthenogenetic theory of their origin, but, while satisfactory enough as an explanation of teratomata arising in the genital organs, this theory in no way accounted for extra-genital teratomata.

Dr. HERBERT WILLIAMSON considered the paper of the very first importance, and congratulated the society on the privilege of hearing the gist of it and Dr. Cuthbert Lockyer on his admirable abstract. Dr. Goodall's paper illustrated the interesting results that could be obtained by extensive research on ovaries of other mammals and their comparison with each other and with man, and also the value of serial sections. He said that the two important points brought out in the paper were, first, the fact that structures formerly regarded as epoöphoron were really oöphoron, and next, the fact that ovarian tubules were not Wolffian but the products of germ epithelium. The Wolffian theory had been dying for some time. It was curious that Keith's work, proving that cysts known as parovarian were really rete-ovarian, was not referred to by Dr. Goodall, as it supported his conclusions. Dr. Williamson had had the privilege of reading the original paper, and had noticed one interesting point not in the abstract; this was a reference to late outgrowths of germinal epithelium in adult life. These outgrowths had been described in 1870 by Waldeyer, who pointed out that they sometimes gave rise to tumours. In another paper Waldeyer stated that he had cut serial sections of 80 ovaries which macroscopically looked normal, but which were taken from patients who had had a cyst removed from the other side. In these ovaries Waldeyer had demonstrated all stages in the formation of a cyst-adenoma, and this observation had been confirmed by the speaker. The deduction as to the origin of pseudo-mucinous cysts appeared to be justified. As to the origin of lutein cells, Goodall regarded them as developed from theca, or interstitial cells, and not from membrana granulosa. On the parthenogenetic explanation of teratomata, Dr. Williamson said that extra-genital teratomata might be due to wandering cells. Dr. Goodall's suggestion as to the origin of peritheliomata from interstitial cells evidently represented an opinion only, as he gave no evidence in support thereof.

Mr. GORDON LEY could not understand the objections to the Wolffian origin of ovarian cysts. An ovary could not be both a downgrowth and at the same time a pedunculated structure.

The PRESIDENT, after a few remarks on dermoids, asked Dr. Lockyer to convey to Dr. Goodall the thanks of the members of the section for the abstract of his valuable paper.

Mr. LEY then read a paper entitled "A Statistical Report of Carcinoma of the Ovary as met with in the Pathological Institute of the London Hospital between the Years 1907–1919 Inclusive, showing the Relative Frequency of Primary and Secondary Ovarian Carcinoma."

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—At a meeting of this society, on Jan. 30th, Mr. A. A. Young, Vice-President, in the chair, Mr. Alex. MacLennan, in a communication on "The Repair, by Bone Graft, of Gaps in the Skull due to Congenital Deficiency, Injury, or Operation," said that cases of gunshot wounds of the head were probably best treated by wide removal of bone, a procedure which ensured at once obliteration of the septic region and complete decompression of the brain. Subsequent protection of the area of brain surface thus exposed was best effected by embedding under the scalp an autoplastic bone graft taken from the patient's scapula. Cases and photographs were shown illustrating the successful employment of this method of repair of cranial defects both congenital and resulting from injuries sustained in war.—Mr. John Patrick showed a patient, the whole of whose right hand, except the thumb, had, after being crushed in machinery, been amputated by Lister in Edinburgh in 1870. The thumb had gradually rotated till it now occupied almost a midpalmar position, and resembled rather a finger capable of powerful flexion. The interest of the case was both historical and economic, as the preservation of even the unopposed thumb had enabled the man to follow for the succeeding 50 years his occupation as a letterpress printer. Mr. Patrick also described some surgical conditions observed in the Salonica Army, with which he served as a temporary Colonel, R.A.M.C. The mountainous character of the country on the borders of Macedonia and Serbia had made transport of the wounded a matter of great difficulty, and the average time elapsing between wounding and operation was over 12, and not infrequently as much as 24 hours; hence by the time the patient was operated on sepsis was established and shock advanced. Gas gangrene occurred in a limited number of cases. Surgical conditions arising in connexion with the sickness prevalent in the Salonica Army, chiefly malaria and dysentery, were not many. Transfusion of blood for malarial anæmia was done with good results. Abscesses following intramuscular injections of quinine were common. A series of 35 cases of perinephric abscess were, he said, collected by himself and Colonel H. A. T. Fairbank. In these the symptoms were at first obscure, suggesting the diagnosis of malaria, phthisis, or an infection of the typhoid group. Localising signs were fullness, muscular rigidity, pain, and tenderness in the renal region. X-ray examination showed a vague shadow with obscuring of the psoas lines. Leucocytosis varied from 12,000 to 45,000. Pus was usually present in the urine in small amount. After evacuation of the abscess healing took place rapidly. Staphylococci were always found in the pus, and in some cases a history was obtained of the occurrence of boils prior to the onset of the renal symptoms. Three cases of anaphylaxis, one of them fatal, were described, associated with the prophylactic doses of antitetanic serum administered to every wounded man.—Professor Carl H. Browning discussed some points in the relationship between a positive Wassermann reaction and infectivity in cases of syphilis.—Dr. Taniguchi demonstrated cultures of *Spirochæta icterohæmorrhagiæ*.—Dr. W. Rankin showed a specimen of Papilloma of the Posterior Wall of the Stomach, about the size of a golf ball, removed by transgastric operation, in May, 1919. The patient, a woman, was well and regularly at work in January, 1920, had gained weight, and was able to take any kind of food without discomfort.

Reviews and Notices of Books.

TOTAL DIETARY REGULATION IN THE TREATMENT OF DIABETES.

By FREDERICK M. ALLEN, M.D., EDGAR STILLMAN, M.D., and REGINALD FITZ, M.D. Monographs of the Rockefeller Institute for Medical Research, No. 11. Oct. 15th, 1919. New York: Rockefeller Institute for Medical Research. 1919. Pp. 646.

IN 1913 Dr. F. M. Allen published a review of the literature of glycosuria and diabetes, with an account of numerous animal experiments he had made, and two years later he outlined a plan of treatment by prolonged fasting based upon his laboratory work. Since then he has had the opportunity of putting his methods to the test of clinical experience at the Hospital of the Rockefeller Institute, and, in conjunction with Dr. Stillman and Dr. Fitz, he has now published the results of his observations. At the outset it is emphasised that, although a basic plan of treatment is essential, every case of diabetes must be managed according to its own requirements, and that the best results are obtainable only when the treatment is intelligently individualised. The system followed at the Rockefeller Hospital is based on the principle that diabetes is a disorder of the total metabolism, not of carbohydrate utilisation alone, and that since the trouble is due to a deficiency of the nutritive function, not of nutritive materials, relief may be expected from strengthening this function, even at the price of diminished food-supply and body-weight. This end is attained by causing the patient to abstain from food at first and later by regulating the total diet according to the capacity to assimilate it—that is to say, by systematic under-nutrition. The duration of the initial fast is determined by the results of Benedict's test for sugar in the urine, feeding being resumed the day after the test becomes negative. As the chief danger threatening during the fast is acidosis, careful watch must be kept, and for this purpose the Van Slyke method for estimating the bicarbonate reserve of the blood and the nitro-prusside reaction in the plasma are recommended. The ordinary acidosis of severe diabetes is regarded as no contra-indication to beginning a fast; in fact, the more severe the acidosis the more urgently is fasting demanded, but blind persistence in withholding food may result in some cases in dangerous and even fatal acidosis, and for such patients an under-nutrition diet of either carbohydrate or protein is advised.

It is freely acknowledged that mistakes and errors of judgment have been made in applying the treatment, especially in the earlier cases. The most common mistake was an over-estimation of the patient's tolerance, with a consequently too high level of diet, and a resulting fall in the power of assimilation. In some instances patients had to be readmitted three, four, or five times for readjustment of their diet, and were discharged on each occasion with further restrictions. Such relapses might be taken to point to an inherent progressive tendency in the disease, but it is maintained that there is no real evidence of such a tendency, and the downward progress is regarded as an additional and separate process, independent of the original cause of the diabetes, and arising from the intake of an amount of food beyond the patient's tolerance. It is pointed out that relapse is common in mild cases with a manifest tendency towards recovery, where excessive diets were exhibited which could only be justified on the assumption that a short period of under-nutrition had cured the disease; relapse is rarer in severe cases which, owing to their obvious severity, were kept on low diets for fear of glycosuria and acidosis. Originally it was hoped that if freedom from glycosuria could be maintained for a prolonged period the tolerance would rise, but experience did not justify this hope—any rise appears negligible, at least in severe cases. Full recovery from diabetes is very rare, apparently, and it follows that the method of under-nutrition by which the initial success is gained must be followed in the later treatment if success is to be achieved. Theoretically, exercise might be expected to aid in the attainment of a higher level of diet and strength, but burning up calories by muscular exertion is not fully equivalent to subtracting them from the diet.

In the section on ætiology and pathology the authors lay down the dictum that diabetes is synonymous with pancreatic disease. They claim that clinical diabetes arises regularly on a basis of pancreatitis, either acute or chronic, and that the seat of the specific diabetic disturbance is now firmly established to be in the islands of Langerhans. Although they express the opinion that the pancreas is one of the most frequently diseased organs in the body, so that a strictly normal gland is rather the exception than the rule, they exclude all glycosurias not associated with pancreatic disturbance as non-diabetic, and also assume that a functional incapacity of the cell islets may be responsible for the symptoms. Considerable stress is laid on the diagnostic significance of the hydropic degeneration of the islands of Langerhans, first described by Weichselbaum and Stengl, in spite of the fact that it is acknowledged to be a result, not a cause, of the disease.

This monograph marks an epoch in the study of diabetes. While a cure for the disease has not yet been found, our knowledge is rapidly advancing in regard to the means by which life may be prolonged and the danger from complications avoided. Our thanks are due to Dr. Allen and his fellow-workers for their strenuous attempt to straighten out one of the most baffling problems of medicine, and to the Rockefeller Institute, by whose munificence the work has been rendered possible.

PSYCHOLOGY OF THE NORMAL AND SUBNORMAL.

By HENRY HERBERT GODDARD, A.M., Ph.D. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1919. Pp. 349. 25*s*.

THIS book is written primarily for teachers during or after training and for parents and the general reader. The first three chapters are concerned mainly with the anatomy and physiology of the central nervous system. A ray of light or a sound wave is supposed to stimulate a "sensory dendrite" (p. 19); nervous energy passes under the name of "neurokyme"; the patellar reflex is chosen as an instance of a simple spinal reflex (p. 20); the ascending afferent spinal paths are pictured (Fig. 25) as uncrossed until reaching the bulb; association by contiguity is identified with simultaneous association (pp. 51, 84); the degree of consciousness is supposed to depend on the number of neurons excited (p. 28). "When two stimuli, each arousing a sensation, become firmly associated, the sensations come to have meaning, and this is called perception, or judgment" (p. 180). A child first draws a man as a circular head; "soon he adds eyes, then nose, and mouth, and finally a body. ...... Evidently he puts in these various details as he gets conscious of them, as his neuron patterns develop" (p. 48). If this is the psychology that "must eventually be written from the practical standpoint in terms that can be appreciated by those ...... who do not enjoy symbols to the extent now used in psychological works," we confess to having little faith in it. It appears as crude and as inconsistent as the spellings "thru," "thot," and "brot," which the writer adopts, while retaining such spellings as "plough," "eye," and "one."

The author of this book had a great opportunity before him, but he has missed it. With vast experience among mentally defective adults and children he might have produced a work on general psychology which would have occupied the same position in relation to our knowledge of mental deficiency as, say, Stumpf's "Tonpsychologie" has filled with respect to the physiology and psychology of hearing. This we may suppose to have been originally his aim, for there are various instances recorded of the abnormal behaviour of the feeble-minded, but there is no systematic, sustained effort to build a psychology upon them.

THE ROAD TO EN-DOR.

Being an Account of How Two Prisoners of War at Yozgad in Turkey Won their Way to Freedom. By E. H. JONES, Lieutenant I.A.O.R. With illustrations by C. W. HILL, Lieutenant R.A.F. London: John Lane. 1920. Pp. 351. 8*s*. 6*d*.

THE authors have written an unvarnished, intensely humorous, and absorbing tale of barefaced deceit and trickery and the manner in which they give away their system is creditable, for had they kept their secret they might well have set up in Bond-street as "Apokaluptikos," or some such title, and raked in a large fortune. Lieutenant Jones, however, says in his preface, "If this book saves one widow from lightly trusting the exponents of a creed that is crass and vulgar, and in truth nothing better than a confused materialism, or one bereaved mother from preferring the unwholesome excitement of the séance and the trivial babble of a hired trickster to the healing power of moral and religious reflexion on the truths that give to human life its stability and worth—then the miseries and sufferings through which we passed in our struggle for freedom will indeed have a most ample reward." The book should be read, and read carefully. Every page of it is a record of masterly ingenuity, and a picture of the capability to "stick it" under most adverse circumstances which is characteristic of the higher side of human nature. Especially, Lieutenant Hill's terrible experience in the Gumush Suyu Hospital is a record of endurance which has few parallels. Against the tragedy the rest of the book is comedy of the most delightful description. The working of the "Ouija," the thought-reading exhibition, the treasure hunt, the incident of the "Four Point Receiver," and the totally innocent and unsuspecting manner in which the victims were led on to believe practically anything that Messrs. Jones and Hill wanted them to believe make most appropriate reading for these times of strain and unrest. We in no way wish to give the idea that the book is a mere record of trickery. The trickery was there it is true, but it was all part of a scheme carried out in the most deadly earnest, and only men blessed with an iron will, a gaiety of mind which refused to be beaten down, and extraordinary memories could have carried the scheme through. Accounts of escapes from prison are always fascinating reading, and this book certainly ranks among the most interesting of its kind, to say nothing of the fact that interspersed throughout the narrative are informing sidelights upon the psychology of prison life.

DENTAL CARIES IN RELATION TO ORAL OSMOSIS.

By RAGNAR ECKERMANN. London: Williams and Norgate. 1919. With 26 plates. Pp. 264. 28*s*.

THE author of this book would have us believe that the generally accepted view of the pathology of dental cariës is wrong, and that the true explanation is the one he advances. Dental pathologists hold that caries of the teeth is a chemico-parasitic process—i.e., the inorganic matter of the tooth is dissolved by acids formed from the fermentation of carbohydrate food, and the remaining organic matter is destroyed by micro-organisms. The carious process, in the view of these pathologists, starts on the outer side of the tooth and progresses inwards. The author of this book states the converse. In his opinion there are two stages in the progress of caries. In the primary, plasma from the pulp passes through the dental structures to the outside of the tooth, the passage taken being largely determined by the direction of least resistance. The portion of the tooth invaded by the blood plasma he terms a "carious canal." This portion of the tooth is then liable to be attacked by secondary caries, a process which consists in solution of the inorganic matter, followed by breaking up of the organic matter by micro-organisms. The solution of the inorganic matter is, in his view, due to hydrochloric acid, and the micro-organisms find such food as is necessary to their existence in the blood plasma in the "carious canals."

He supports his theory by destructive criticism and by experiments and observations. His destructive criticism of the chemico-parasitic theory is most unsatisfactory: he does not seem clearly to understand the views of some of the authors he quotes, and he has an unhappy method of distorting their facts to suit his theory. We do not find his experiments conclusive, and we think that his observations are capable of a very different interpretation from that which he gives. We may quote, in justification of this criticism, his observation of that changed band of tissue which runs from the surface of the tooth to the pulp—the appearance is well known to those accustomed to prepare hard sections of carious teeth. It is this band of tissue which he calls the carious canal and which he considers is due to passage of plasma from the pulp. This transition he believes is due to an increased osmotic pressure of the saliva, consequent chiefly upon the use of salt and, to a less degree, of sugar. A far more reasonable explanation of this band of tissue, and one that is in accord with our views of general pathology, is that the changes observed are due to the natural reaction of the tooth to injury from external stimuli.

But the book is certainly interesting, if not convincing, and well worthy of perusal for many of its suggestions.

THE HEALTH OF THE TEACHER.

By Dr. W. E. CHANCELLOR. Chicago: Forbes and Co. 1919. Pp. 307. $1.25.

MOST books on hygiene begin with some account of anatomy and physiology as the basis for understanding the management of health. It is refreshing, therefore, to meet with one showing an entirely novel means of approach: "I seek to distinguish the patterns of life according to the natures of different men," the author, quoting from Plato, declares as his theme. He makes the study of individuality the first step towards promoting health—individuality, the product of physical and racial natures. He indicates the important influence of the ductless glands on the physical side, and on the racial side he identifies predominant characteristics of the nine breeds of individuals (Saxons, Scots, Irish, Dark Picts, and so forth) which are conspicuous among those who adopt the teaching profession in America. Then he proceeds to analyse human nature according to temperament (the ideo-motor, vital-corpulent, &c.). From these foundations he passes on to the study of individual cases, indicating the diseases and weaknesses to which they are likely, through their racial, physical, and temperamental constitutions, to be particularly liable. The second part of his work is primarily of an advisory nature, providing the rationale of health control.

Perhaps, on the whole, the author gives more attention to the woman teacher than to the man, but with both he is conspicuously human in his treatment of his subject, appreciating in their effect on health the circumstances and events of the teacher's daily life. He discusses, for example, questions of home life, daily journey to and from school, periodicity (diurnal, hebdomadal, mensal, annual), recreation, dress, diet, sleep—all in a simple, illuminative, novel, and thoroughly entertaining manner. To marriage as it affects the teacher he devotes considerable attention, upholding the position of the married woman teacher. On every school staff, he holds, there should be some married teachers, not only because their parental experience enables them to manage children sympathetically, but because they are healthier and live longer. Love affairs and courtship, important factors in health and efficiency, he discusses with a frankness not known in the text-books on hygiene in this country.

This book is entertaining, provocative, and so original in its presentation, that while we do not recommend it precisely as a text-book on hygiene, we do advise that it should be read in conjunction with other works on the health of the teacher. Alone, it might tend to induce undue introspection and anxiety, and because some of its dicta are based upon attractive, though as yet unsubstantiated, theories it would fail to provide an absolutely sound scientific foundation to the study of health.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

MALTO.

(THE PHŒNIX TRADING CO., LTD., LONDON.)

THE description that "malto" is a non-alcoholic beer is accurate according to the results of our analysis. On distillation a distillate was obtained showing a specific gravity of 0·999, which means that, practically speaking, alcohol was absent. Otherwise malto presented the composition of a high-gravity beer, the analysis yielding the following results: Total solids, 8·71 per cent.; mineral matter, 0·08 per cent.; malt sugar, 7·34 per cent.; proteins, 0·17 per cent.; dextrin, 1·12 per cent. There was no evidence of objectionable preservatives present and the samples examined were in sound condition and kept so. The beverage is reminiscent of brown Munich beer and has a similar malty flavour. It is agreeably but not excessively effervescing. To sum up, it possesses the same dietetic value as what is called an "extra" stout, with the important difference that it is alcohol-free. The nutritive value resides chiefly in the rich proportion of maltose and dextrin present.

POWEREX.

(POWEREX, 15, CHARLOTTE-STREET, LONDON, W.)

This is a granular powder having the appearance of dried full-cream milk. Its components include, according to statements which have reached us, glycerophosphates and pure dried cream. Our analysis gave the following results: Moisture, 7·60 per cent.; mineral matter, 8·90 per cent.; proteins, 22·33 per cent.; reducing sugar, 40·00 per cent.; phosphates (P_2O_5), 2·62 per cent. The powder dissolves to the extent of 62 per cent. in cold water. So far the claims as to its composition are borne out by this analysis. It responds quickly to the well-known tests for active enzymes. The rich proportions of fat, protein, and carbohydrate are noteworthy.

(1) DIGALEN GRANULES; AND (2) SCOPOLAMINE PREPARATIONS.

(THE HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD. (BASLE), 7 AND 8, IDOL-LANE, LONDON, E.C. 3.)

(1) We have before referred to the claim that digalen is a standardised solution of digitoxin, a claim which has been well supported by reliability of action in therapeutic experience. For convenience of administration digalen granules have been prepared by an approved process, each containing 1/1000 of a grain of digitoxin (Cloetta). The small dosage so presented enables the physician to keep control over the tolerance of his patient. (2) Scopolamine stable (Roche) is claimed to be a stable solution of a pure salt of lævo-rotatory hyoscine contained in ampoules of 1·1 c.cm., enabling exactly 1 c.cm. to be withdrawn by the syringe. Three strengths are supplied. Omnopon-scopolamine (Roche) is a combination of the total alkaloids of opium and scopolamine, which has been used as an adjunct to inhalation anæsthesia, and particularly in painless childbirth. A choice of three strengths is provided.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

August 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.			Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	57	0·09	0·56	2·15	3·19	2·28	8·27	0·72	0·93	0·08
Embankment Gardens	39	0·10	2·82	8·94	1·36	1·65	14·88	1·32	0·37	0·12
Finsbury Park ...	66	0·22	1·19	5·05	3·54	3·87	13·86	1·92	0·66	0·11
Ravenscourt Park	24	0·18	1·61	4·14	1·61	1·18	8·72	1·33	0·24	0·16
Southwark Park	45	0·04	1·50	4·37	1·58	1·83	9·33	1·81	0·35	0·20
Victoria Park ...	39	0·07	1·13	2·79	1·29	1·78	7·05	1·35	0·30	0·18
Wandsworth Com	22	0·02	0·90	2·00	0·82	0·92	4·65	0·69	0·16	0·05
Golden Lane ...	45	0·05	2·48	4·25	1·64	4·37	12·78	2·16	0·54	2·83
Malvern	62	Tr.	0·18	1·00	1·10	4·30	6·58	2·75	1·03	0·01
Rothamsted	62	—	0·16	0·22	1·12	3·46	4·96	—	—	—
St. Helens...	127	0·20	2·64	4·98	3·99	6·60	18·41	3·30	1·65	0·18
Southport—										
Hesketh Park ...	87	0·02	1·08	4·14	1·48	5·04	11·76	1·51	0·74	0·05
Woodvale Moss ...	77	—	—	—	—	—	9·28	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	57	0·08	1·29	3·24	1·60	3·80	10·01	1·73	0·52	0·08
Bellahouston Pk.	63	0·01	0·87	1·52	0·95	3·69	7·04	1·48	0·19	0·04
Blythswood Sq. ...	65	0·08	1·94	3·86	1·63	3·63	11·14	1·81	0·23	0·11
Botanic Gdns. ...	66	0·05	1·24	2·94	2·43	3·30	9·96	1·34	0·17	0·05
Richmond Park...	63	0·10	2·02	3·64	1·60	3·48	10·84	2·19	0·19	0·11
Ruchill Park ...	76	0·08	1·55	3·73	1·25	4·30	10·91	1·82	0·23	0·05
Queen's Park ...	67	0·00	0·58	1·81	1·02	3·65	7·06	1·59	0·16	0·05
Tollcross Park ...	63	0·20	2·28	6·00	1·86	4·70	15·04	2·38	0·19	Tr.
Victoria Park ...	65	0·07	1·24	2·88	2·15	4·35	10·69	2·09	0·21	0·09

Sept. 30th, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.			Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	27	0·10	0·68	0·80	1·29	0·87	3·74	0·32	0·23	0·02
Embankment Gardens... ...	31	0·23	4·17	8·82	1·06	2·63	16·90	1·39	0·28	0·11
Finsbury Park..	36	0·03	0·20	0·80	1·09	2·01	4·13	1·59	0·27	0·08
Ravenscourt Pk.	38	0·04	2·39	6·39	1·66	1·71	12·19	1·46	0·23	0·16
Southwark Park	35	0·06	1·91	4·58	2·17	2·63	11·35	2·11	0·35	0·07
Victoria Park ...	31	0·07	0·89	1·45	1·74	2·02	6·17	1·66	0·28	0·11
Golden Lane ...	24	0·07	1·60	3·92	0·66	2·46	8·70	1·19	0·26	0·12
Malvern...	44	—	0·18	0·97	0·95	5·25	7·35	2·96	0·15	0·01
Rothamsted... ...	29	—	0·50	0·57	0·57	1·80	3·43	—	—	—
St. Helens	62	0·11	1·74	5·84	3·03	5·13	15·85	2·71	1·26	0·10
Southport—										
Hesketh Park...	60	0·03	0·54	1·24	1·20	3·28	6·29	1·14	0·66	0·05
Woodvale Moss	48	—	—	—	—	—	9·76	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park	46	0·04	1·09	2·97	1·15	2·91	8·16	1·48	0·27	0·05
Bellahouston Pk.	46	0·02	1·07	1·86	1·04	2·44	6·43	1·61	0·49	Tr.
Blythswood Sq.	53	0·13	2·48	5·21	1·46	3·64	12·92	2·05	0·28	0·12
Botanic Gdns....	59	0·04	1·29	2·21	1·57	3·16	8·27	1·99	0·22	0·03
Richmond Park	58	0·04	1·54	3·56	1·72	3·72	10·58	2·35	0·18	Tr.
Ruchill Park ...	71	0·05	1·53	2·73	1·21	3·46	8·98	2·02	0·26	0·08
Queen's Park ...	63	0·03	0·98	2·07	0·91	3·06	7·05	1·55	0·20	Tr.
Tollcross Park..	57	0·07	1·94	5·28	1·78	4·02	13·09	2·28	0·23	0·09
Victoria Park ...	65	0·04	1·83	3·57	1·55	4·30	11·29	1·91	0·32	0·03

There were no returns during the month of August from the following stations: Manchester (Whitworth Street Garden and Roof of College); Newcastle-on-Tyne; and Rochdale. Observations for the first time appear from the well-known Rothamsted Experimental Station, Harpenden, Mr. E. Hannaford Richards, B.Sc., of the Lawes Agricultural Trust, being responsble for the analytical results so far recorded. There were no returns from the following stations during September: London (Wandsworth Common); Manchester; Newcastle-on-Tyne; and Rochdale.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall. Tr. = Trace.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 14, 1920.

The Origin of Man.

A SERIES of lectures on the origin of man, delivered by Professor G. ELLIOT SMITH at the Royal Institution, have been briefly reported in these columns. Their great and wide interest does not emerge from such short notices, and it is to be hoped that they will be published in full in some generally available form. The first lecture[1] was devoted primarily to the investigation of the precise nature of the determining factors that started the Primates on the particular line of development which culminated in the emergence of man. Stereoscopic vision by an animal, with hands still sufficiently plastic and unspecialised fully to take advantage of the new powers of experiment which such vision made possible, and a brain equably representing the other senses, thus enabling the animal to profit from such experience, were the fundamental factors that started our remote Eocene ancestors on the path which eventually brought some of their descendants to man's estate. Incidentally the lecture was devoted to the explanation of what evolution meant to the biologist and what world-wide wanderings were involved in the process of the evolution of the order to which man belongs.

The second lecture was concerned with the demolition of the speculations falsely called "evolution" of culture by the ethnologists, who have misunderstood what the biologist means by "evolution" and compared it with "spontaneous generation." A specific illustration was taken—the ancient American designs, in which the Indian elephant and the associated myths play a part—to demonstrate how primeval civilisation, even in the most distant parts of the world, was inspired by developments in the Ancient East, the home of invention, proving that the whole history of man's achievements in this direction was determined by the diffusion of culture throughout the world during the last 50 centuries. The third lecture, a brief abstract of which appears in our columns to-day (see p. 409) was devoted to an inquiry into the motives for and the means whereby small groups of men wandered about the world and planted the germs of civilisation in certain places and not in others. Evidence was adduced to show that if gold is the sheet-anchor of the modern world it also played a momentous part in the development of civilisation centuries before the invention of a gold currency. The process which is familiar to us in California, Ballarat, Coolgardie, Johannesburg, and Klondyke, and in the historical records of the search for the Gold Coast, the American El Dorado, the Mountains of Gold (Altai), the River of Golden Sand, and the Golden Chersonese—all this has been going on for more than 50 centuries. In the great majority of cases the spots throughout the world where the germs of civilisation took root in ancient times were the sites of gold or copper mines or of pearl beds; and the men who planted the higher culture in these localities were the miners or pearl-fishers who were exploiting these forms of wealth. The evidence in substantiation of this most important conclusion, which we owe to Mr. W. J. PERRY, of the University of Manchester, is the coincidence of the geographical distribution of megalithic monuments, practices of mummification, terraced cultivation, sun-worship, and a host of other things with ancient mines and pearl fisheries.

The fundamental problem is to determine why gold was sought so assiduously for centuries before the relatively useless plastic metal had acquired its arbitrary and artificial value as currency. The earliest place where gold is known to have been used is Egypt. Golden models of cowries were used as amulets on girdles and necklaces, as the actual shells are still used in East Africa, Oceania, and elsewhere. The Egyptian hieroglyph for gold is a picture of a girdle of cowries. The shells were used, from Upper Palæolithic times onwards, as symbols of the female pudendum—i.e., as "givers of life," and hence came to acquire the reputation of averters of death or even of the risk of death. Hence they acquired in popular imagination the most potent therapeutic powers, and were sought far and wide as amulets to confer the priceless boons of life insurance, health, fecundity, and a continuance of existence after death. So great was the social, therapeutic, and religious value acquired by cowries (as well as other shells and pearls) that the demand soon exceeded the supply. Then models of the shells were made of clay, stone, or any material that came to hand, such as the plastic yellow metal that was lying about, unused and unappreciated, in the very place between the Red Sea and the Nile where the demand first made itself felt. Gold models of the cowrie appealed to the æsthetic sense, and soon acquired a popularity far exceeding that even of the cowries themselves. In course of time the reputation for life-giving and life-preserving, which originally was associated merely with the "form" of the golden amulets, came to be transferred to the metal itself. It thus acquired the reputation for life-giving, for healing, for corpse-preserving, for averting the risk of death, and for giving "life after death," which at first belonged to the shells only. Thus gold became the most desirable stuff to secure—it appealed to man's deepest instinct of self-preservation—and from about 3500 B.C. onwards man began to ransack the whole world for this elixir of life, and incidentally the gold-miner became the missionary of civilisation, and the harbinger of the strife which greed for gold creates.

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[1] The Evolution of Man and the Early History of Civilisation, THE LANCET, Feb. 7th, p. 357.

Fashion in Therapy.

THE medical profession is no more immune than any other section of the population to the influence of fashion, and this is to be expected, for medicine is not an exact science, while every trial along unexplored paths may lead to fortunate issue. If a path looks promising, as long as medical art cannot provide relief for all the ills that flesh inherits, many will go down it. When a therapeutic measure is employed for a series of years, and then is dropped suddenly, the explanation is that at last, and by common consent, it is recognised that that particular path is leading nowhere. The application of hot oil to the stump after amputation was employed for generations because surgeons had appreciated that heat was the right way in some circumstances to prevent severe septic complications; then AMBROISE PARÉ succeeded in proving, almost against his own opinion, that many patients did much better to whom this heroic treatment had not been applied. As a routine treatment hot oil was dropped, but the value of the cautery in some cases is still acknowledged. Venesection had endured for more than 2000 years as the only, or at least the best, method of dealing with inflammatory processes, until the failure of bleeding in the case of some epidemics became demonstrable, and even then the first idea to occur to the conservative mind was that there had been a change in the constitution of the populace. And so venesection persisted, and within the memory of some of our fathers most hospitals used to have a "cupper," who came daily to carry out the instructions which had been left by the physicians or surgeons; even as late as 1860 some hospital calendars contained the name of the cupper. At last the tide turned, intelligent experience of pneumonia putting an end to the general practice of venesection for inflammatory conditions. PIERRE LOUIS showed statistically, some 80 or 90 years ago, that the results obtained by less heroic methods surpassed those afforded by blood-letting. But the pendulum has swung back too far, and there is little doubt that to-day the therapeutic value of venesection is underestimated; it still has its uses and is too rarely employed. In the use of leeches also there has been a wondrous change of fashion. In 1832 21,000 leeches were used in St. George's Hospital, and in 1882 the number had fallen to 754; and we may be sure that in the 38 years that have elapsed since then the number is still more reduced. In 1832, at St. Bartholomew's Hospital, 97,300 leeches were used, and in 1882 only 1700. But there remain wise physicians who employ this simple and effective method of controlling inflammation.

The popularity of drugs with the members of the medical profession also varies greatly; it is due to the blind following of fashion that the use of drugs fell into disrepute, whence the efforts of learned pharmacologists like the late THOMAS FRASER have begun to rescue it. Sarsaparilla, especially in the form of the compound decoction, at one time had an enormous reputation; no small number of surgeons considered that it was as valuable in the treatment of syphilis as mercury itself. Sarsaparilla is now more appreciated by the customers of the herbalist than by anyone else. Yet the drug cannot be utterly without therapeutic value, even if it was formerly rated too high. Being quite unable to live up to its entire claims, it has lost credit completely, and its neglect may be an error. Arsenic, one of our most valuable pharmaceutical weapons, has been affected strangely by the passage of time, for while its real uses escaped knowledge, its possible uses were grossly exaggerated by repetitionary laudation. It was well known in some of its forms to ancient medicine, and we find it extensively employed in the Middle Ages. In the latter half of the eighteenth century it was in great repute for the treatment of malaria. Early in the nineteenth century it began to be used widely for the treatment of skin diseases, and the idea has been firmly implanted in the public mind that there are two infallible drugs for the treatment of affections of the skin, sulphur externally and arsenic internally. A reaction has long since set in, and the use of arsenic by dermatologists has diminished. In THE LANCET recently we reported a meeting of the Therapeutic Society of Paris in which the claims of arsenic for skin affections were declared to be absolutely without foundation, and this belief is shared by many authorities in this country. But there remain, perhaps, as many who, having had great experience in this department of practice, value the drug highly, and maintain that it is of excellent result if properly given. While the medicinal preparations of arsenic are thus losing hold, the organic arsenic compounds are becoming our routine weapon against syphilis.

The following of fashions is by no means harmful. Indeed, it is the right course to take so long as it is not taken in opposition to conviction, and without heed to the mental reservations that are arising. There is a real risk that in the trial of some new remedy or method the old may be forgotten, and therefore the old should not be too hastily cast aside. "Be not the first by whom the new is tried, nor yet the last to lay the old aside," is good advice in matters medical as in general life. Many will remember the enthusiasm with which vaccines were introduced into practice, when it seemed that before long it would be possible to cure every ill with a series of injections of vaccine. The present position of the use of vaccines is far below what might have been expected from what was said then. That vaccines are of value none can doubt, but their sphere of utility is circumscribed, and only too often a vaccine is prescribed because all other methods have failed. The rush to Berlin at KOCH'S announcement of his preparation of tuberculin cannot be forgotten, nor the disappointment which followed. It is certain that new fashions in medicine will be ever arising, and that the hopes raised by them will in many cases, perhaps in a majority, be disappointed. Still, out of the evil of failures true progress will be made, and we must avoid with care docile adhesion to creeds which our judgment tells us may be outworn.

The Dentist, the Welfare Centre, and the School.

IN his annual report for 1918 as medical officer of health for Wandsworth Dr. P. CALDWELL SMITH gives an interesting summary of that borough's activities in respect of maternity and child welfare. It is not proposed to make reference to the varied work undertaken at the six welfare centres, at the Minor Ailment Department, and through the agency of the health visitors; in the main these are typical of the activities to be found in many of our more vigorous communities. Attention is here specially directed to one item in the scheme of welfare work in Wandsworth—viz., the inclusion of dentistry—in order to illustrate the broader outlook on problems of health now adopted by a constantly growing number of progressive public authorities. Dr. SMITH notes that at one of his centres arrangements had been made with a dental hospital for the treatment of mothers and children sent from the centre. At another, with the coöperation of the London County Council, dental treatment was provided for young children at an inclusive charge of 1s. per child, the fee being reduced to 1*d.* in necessitous cases; it was further proposed to extend the scope of dental treatment to include fillings and extractions, and perhaps at a future date the provision of dentures, for mothers on the register of the centre.

There is real cause for jubilation in the fact that a number of local authorities have already gone far towards a comprehensive scheme of dental supervision for mother and child, while still more are now under weigh and beginning to spread canvas. The provision of dentistry is one of the several activities in which collaboration between the Public Health and the Education Committees of the local authorities concerned is obviously of mutual advantage. The dentist appointed by the two bodies jointly would, as an officer of the Public Health Committee, inspect and give dental advice and treatment to expectant and nursing mothers and to young children up to the age of 5. The work could best be done at, or in close connexion with, welfare centres, and, as the dentist's personality became felt, children would be brought with increasing regularity year after year for dental supervision. With the years would probably come the establishment of a dental workshop, through which the dentist would provide dentures in suitable cases for expectant and nursing mothers and orthodontic appliances for children. By such extension of his sphere of influence the dentist would himself be stimulated into becoming an active missionary for the welfare centre, attracting to it to an increasing extent the class of individual whom the centre should chiefly serve. The advantage to the Education Committee of collaboration would be equally patent. The dentist would continue and extend the work already considerably developed under the ægis of the Board of Education, and in due course would enlarge his sphere beyond the child of the public elementary school to include the adolescent of the secondary and the continuation school. At the same time, his labours for the Education Committee would be lightened to a constantly increasing extent by his previous handiwork for the Public Health Committee at welfare centres. The school dentist would thereby himself lose that sense of futility which oppresses him now, through the knowledge that even when he deals with the child at the beginning of its school career he is already late on the field, and has to put up an unequal fight against dental decay which has entrenched itself during the pre-school years. The work, with its varied types of child, adolescent and adult, with its extension to a greater variety of dental operations than is now afforded by school dentistry, would attract men of good calibre for its own sake, and would lead to more continuous and more contented service.

Annotations.

"Ne quid nimis."

ALCOHOLIC MENINGITIS.

THOUGH signs of chronic meningitis are frequently found post mortem in the bodies of those addicted to alcohol, not until the advent of lumbar puncture was there any clinical evidence of the existence of alcoholic meningitis. Indeed, in this country it is scarcely recognised. At a recent meeting of the Société Médicale des Hôpitaux of Paris Professor Maurice Villaret, M. Fr. Saint-Girons, and M. J. Capoulade reported a case of alcoholic subacute meningitis which is important because of the cogency of the evidence of causation, including the demonstration of alcohol in the cerebro-spinal fluid.

A woman, aged 45 years, a worker in metal, was admitted into the Hotel-Dieu on July 1st, 1919, for severe headache. She was so drowsy that she could not give a history. From her relatives it was ascertained that she was of intemperate habits, but they could not say whether her excesses had recently been greater than usual. Her illness began a fortnight previously by frontal and temporal headache, loss of appetite, and constipation. For several days she was somnolent and replied to questions with difficulty. Her face was congested and without expression, and her eyes were haggard. She lay on her back without the slightest movement and complained only of severe frontal headache. The tendon reflexes were brisk, but the plantar were absent. The pulse was slightly accelerated but regular. In the evening the temperature rose to 102·8° F., and there was a little delirium with incontinence of urine. Meningeal symptoms—slight rigidity of the neck and Kernig's sign—developed. On the 2nd these symptoms increased. The patient became more and more torpid and did not understand questions. The constipation was obstinate and yielded only to enemata, and the tongue was thickly coated. The urine was normal. On the 5th lumbar puncture was performed and yielded slightly cloudy fluid. On the 7th there was retention of urine necessitating catheterisation. The rigidity of the neck, Kernig's sign, the headache. and the delirium persisted. The tendon reflexes were brisk and the pupillary reactions were normal. The temperature did not exceed 100·4°. On the 9th lumbar puncture yielded clear fluid, and on the 10th the patient was much better and gradually regained consciousness. On the 31st she was discharged completely cured. Examination of the cerebro-spinal fluid, removed on the 5th, showed a little floating fibrinous filament. On centrifugalisation it yielded an abundant white deposit which contained numerous cells, of which 87·3 per cent. were polynuclear and 2·7 mononuclear. There were no microbes. The fluid removed on the 9th contained 40 cells per c.mm., of which 65 per cent. were lymphocytes, 30 mononuclear, and 5 polynuclear. Fluid was also taken on the 17th and gave the bichromate reaction for alcohol. The Wassermann reaction was negative, both for the blood and the cerebro-spinal fluid.

It is generally stated that lumbar puncture is negative in acute alcoholism, but a number of cases to the contrary have been recorded. In 1901 Dufour reported the first case. An alcoholic woman presented intellectual troubles and paralyses, and succumbed to marasmus in spite of antisyphilitic treatment. Lumbar puncture showed abundant lymphocytosis and the necropsy chronic meningitis. Here alcoholism did not appear to be the sole factor, as there was a history of eight abortions, and three days before death the pupils were unequal. In 1909 Henri Claude observed in an alcoholic subject, 19 years of age, well-marked meningeal reactions with xanthochromia and massive coagulation of the cerebro-spinal fluid. M. Villaret has found polynucleosis and hyperalbuminosis of the cerebro-spinal fluid in two out of a dozen cases of delirium tremens. M. Saint-Girons, with the late M. E. Mosny, observed in an alcoholic woman of 56 a meningeal syndrome characterised almost exclusively by headache, mental troubles, and accompanied by transient superabundant polynucleosis of the cerebro-spinal fluid. Recovery was rapid and the Wassermann reaction was negative. The authors suggested that this was not an example of meningitis properly so called, as the symptoms were so slight and passing, but of meningeal congestion, which may be a prodromal stage of meningeal hæmorrhage, a frequent lesion in alcoholics.

THE PATHOGENESIS OF DEFICIENCY DISEASE.

THOSE who have followed, in recent issues of THE LANCET, the careful studies on deficiency disease in the Near East from the pens of Dr. A. D. Bigland and Dr. J. I. Enright will turn with interest to an account given by Lieutenant-Colonel R. McCarrison, I.M.S., of further experiments[1] made by him at the Pasteur Institute of Southern India on the pathogenesis of deficiency disease. His previous investigations were discussed by us in THE LANCET of July 12th, 1919. Colonel McCarrison now deals with the question of the influence of dietaries deficient in accessory food factors on the intestine, and also on the influence of a scorbutic diet on the adrenal glands. His present series of researches have led him to the conclusion that dietaries deficient in accessory food factors give rise in pigeons and in guinea-pigs to congestive and atrophic changes in all coats of the intestine, also to lesions of its neuro-muscular mechanism, to impairment of its digestive and assimilative functions, and to failure of its protective resources against infection. The functional perfection of the gastro-intestinal tract is dependent in a considerable measure on the adequate provision of accessory food factors derived from fresh fruit and vegetables. Further, certain gastro-intestinal disorders, such as chronic intestinal stasis, in the human subject may owe their origin to the long-continued subminimal supply of accessory food factors. Although Colonel McCarrison's experiments were made on birds and guinea-pigs, and although he deprecates any great readiness to apply too directly to the human subject the experimental results of intensive "vitaminic" starvation in the above-named animals, nevertheless he regards the changes he describes as applicable in some degree to man. He contends that it is with sustained subminimal provision of the accessory food factors that the physician is mainly concerned in practice, complete "vitaminic" deprivation being relatively rare, while incomplete "vitaminic" deprivation or subminimal supply of these accessory factors is relatively frequent. Food deficiency also prepares the soil for bacterial growth, and the resulting morbid states will vary with the nature of the organisms which may become implanted upon it. If this knowledge does not enable us to account fully for such gastro-intestinal disorders as mucous disease, cœliac disease, and chronic intestinal stasis, it will, in Colonel McCarrison's opinion, at least help us to a better understanding of their genesis. Another series of experiments were made with guinea-pigs respecting the influence of a scorbutic diet on the adrenal glands. It was found that such a diet caused pronounced depreciation of the functional capacity of the adrenal glands, and that this impairment of adrenal function occurred before clinical evidence of scurvy became manifest. All these contributions to the literature of deficiency diseases are well worth careful study.

NURSE ANÆSTHETISTS.

IT was stated in a leading article in THE LANCET of Sept. 27th, 1919, that the nurse anæsthetist is accepted in Switzerland. A Swiss operating surgeon writes to tell us how this has come about. The carrying out of narcosis is, he says, left to the nursing sisters in cantonal and communal hospitals because doctors are not available for the purpose. At the smaller communal hospitals the doctor is, as a rule, single-handed, so that the operator has to rely for assistance as well as for narcosis upon the sisters. But even in the larger cantonal hospitals and clinics, at which a number of doctors are available, narcosis is left to the sisters, and the experience with this arrangement has been good. Our correspondent adds that in Switzerland the question whether doctor or nurse is to be preferred for the carrying out of narcosis cannot be answered with a direct yes or no. The doctor, by reason of his education, has a better understanding of the physiology and pathology of narcosis than the sister, and this is certainly not an indifferent matter. But practice plays a large rôle in the giving of anæsthetics, and in this respect the sisters have the advantage, for few Swiss doctors choose narcosis as their career, while the narcosis sisters in hospitals often give, year in year out, a large proportion of the anæsthetics. While it would be a mistake to hand over narcosis to a doctor simply because he is a doctor, the doctor with constant opportunity to keep in practice is, in our correspondent's opinion, to be preferred to the narcosis sister since his scientific knowledge will enable him the better to foresee and avert the accidents which threaten. In Germany, where probationers give most of the anæsthetics, complicated apparatus is used in the hope of mitigating the dangers which arise from lack of practice, but the practised anæsthetist will get on with the simplest methods. Our correspondent adds that he has never seen better narcosis than that of an English colleague who used "a piece of flannel and a scent bottle." In his own private clinic for many years past a Swiss colleague, a gynæcological specialist, gives ether alone on a Juillard's mask with uniformly successful results. It seems, then, that in Switzerland the doctor anæsthetist is held in proper regard, but that he is rarely available under existing circumstances.

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[1] Indian Journal of Medical Research, vol. vii., No. 1.

SCIENCE AND INDUSTRY.

THE country under occupation by the Allies in the vicinity of Cologne includes some of the best examples of German chemical industry, and it is interesting to learn that the great factories on the banks of the Rhine have been visited recently by a deputation of British experts. Their report has been issued, and, generally speaking, confirms our previous knowledge of the Germans' activity and their remarkable steadfastness of purpose. It is not so much initiative or ability that they possess as a determination to work out detail and to adapt the lessons of the laboratory to commercial ends. They have turned chemistry to national account, and that is the main lesson of the report to us. In Germany scientific investigation is encouraged, the best advice is gained, and men who are trained to a high level of efficiency are well remunerated. This policy, begun years ago, succeeded, and explains why Germany took a lead over other nations in producing fine and heavy chemicals, pharmaceutical products, and dye-stuffs. The essentials in regard to many processes, naturally enough, are jealously guarded, and presumably it was not the mission of the experts to extract, in many instances, manufacturing secrets. The report is an instructive one, and should have a healthy and stimulating effect on the chemical industries of this country. We are not behind in ability, but we are slow to reap, commercially and nationally, the harvest of our scientific attainments.

AUTOPSIES ON PRISONERS OF WAR.

Professor Rinaldo Pellegrini, of Parma, whose article on simulation in prisoners of war has recently received notice in THE LANCET,[1] describes the results of about 100 autopsies[2] performed by him during his confinement at Celle (Hanover). The excellent water-supply and perfect system of drainage prevented the appearance of the most serious forms of infectious disease. No cases of typhus or cholera occurred. More than a third of the deaths were due to tuberculosis; broncho-pneumonia and lobar pneumonia were fairly frequent, dysentery was rare, there were two cases of malignant growths, two of tuberculous meningitis, and one example of Pott's disease. The œdema of prison camps, though fairly diffuse, was never by itself a cause of death. In almost all the cases, in spite of the youth of the patients, the aortic arch and descending aorta showed patches of arterio-sclerosis, the condition being attributed by Pellegrini to the bodily and mental stress of war and the inanition suffered during imprisonment. Brown colouration of the myocardium, and in more advanced cases brown atrophy, were frequently observed as the result of chronic underfeeding. The same cause accounted for status lymphaticus and the absence of a persistent thymus, which were not infrequently found in autopsies on soldiers at the front. The hilar glands in cases of tuberculosis sometimes showed no specific lesions, this being due principally to the greater facilities for exogenous infection and the more rapid course of pulmonary tuberculosis among prisoners of war. Chiefly as the result of the consumption of war bread, an inferior quality of which was given to the prisoners, gastric catarrh and erosions and chronic enteritis were frequently found.

PHYSIOLOGICAL RESEARCH AT NAPLES.

THE Zoological Station at Naples has long been known to biologists as a place where the worker is free to carry out researches on his chosen subject independently and without let or hindrance, and with the advice and guidance of the expert staff when desired. Work-tables are rented at the rate of 2500 francs per annum (payable in gold) and as, since 1915, the number of tables let to States has greatly diminished the station is now in need of additional support. Professor E. Gley has recently called attention[1] to the section of physiology and physiological chemistry at the same station, the laboratory equipment of which corresponds to modern requirements of research. The term "Zoological Station," strictly correct under the directorship of Dohrn, should indeed be broadened to "Marine Biological Station," now that physiological study occupies a place as important as does morphological. The utility of researches into comparative physiology is receiving increasing recognition. For biological chemistry, for the study of functional activities, of immunology, and of general physiology it is of the highest importance to be able to experiment with organisations so varied, presenting functions so diverse, as those which inhabit the sea; and the richness and variety of the fauna of the Gulf constitute a chief reason for attracting physiologists to Naples, while in Professor F. Bottazzi the section is fortunate in possessing a director of scientific eminence and polyglot facility. There are, it is true, other marine laboratories in Europe, but with the possible exception of Tamaris-sur-Mer (Var) they lack proper provision for physiological study. At Naples the excellent installations stand ready for use, there is a library of more than 30,000 volumes, with abundant sets of periodicals, and the student will have every help and encouragement.

MERCY FOR THE CHILD.

IN Vienna during the first week of the present year 371 children were born alive and 56 dead, while during the same period 735 deaths were registered, 104 of them ascribed to pulmonary tuberculosis. With 2 deaths to 1 birth the problem of surplus population will not take long to solve itself, even in a capital city. Our Vienna Correspondent last week noted that less than 3 per cent. of the 186,000 school children examined were in a state of good nutrition, and expressed his misgiving at what might happen in the event of epidemic outbreak. In Buda-Pest the situation is still more terrifying, since the already starving wartime population has been almost doubled by the influx of fugitives. Miss J. E. Vajkai, the Hungarian Red Cross delegate, writes from Geneva, under date Jan. 28th, that "the little half-naked children find really every possibility to die." If hunger and cold do not bring immediate release tuberculosis is ready to do its slower work. Nor is the situation much different in adjacent countries for the American Relief Fund is providing a daily 600-calorie meal for 1,300,000 children in Poland and for 500,000 little Czecho-Slovaks. In Germany, which has already stepped in to offer relief when Vienna was at its last gasp for bread, rickets has endangered the limbs and prospects of a large proportion of its town children, as Professor Engel showed for Dortmund in our issue of Jan. 24th.

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[1] THE LANCET, Dec. 27th, 1919, p. 1201.
[2] Giornale di Medicina Militare, Jan. 1st, 1920.

[1] Revue générale des sciences pures et appliquées.

The ring of neutral neighbours, unable to bear the story of such misery, has long been offering hospitality to relays of starving children, and already some 30,000 Viennese children have been entertained for a month or more in Switzerland, Holland, Denmark, Scandinavia, and recently—to its infinite credit—in Italy. This country has responded by raising a sum of money, now amounting to nearly £100,000 for starving women and children, and at the suggestion of Sir Thomas Cuninghame an infant welfare supply centre is being organised by the Friends' War Victims Relief Committee in each of the 21 wards of Vienna. All these measures touch as yet but the fringe of the need. But this week the Bradford City Council nearly resolved that the Aliens Act should no longer deter Yorkshire, at all events, from showing mercy to the children of its late enemies. A proposal to offer hospitality for 12 months to 1000 children of school age from the famine areas of Central Europe failed by a small minority in the Council, being replaced by a unanimous vote to subscribe largely to the relief fund.

But Bradford's lead may be followed at once by Manchester, which is to provide for 2000 children if that city accepts its Lord Mayor's guidance. It only remains for every town and village in the country to follow suit after its kind. Who does not give quickly may have no chance of giving at all, for the on-coming of severe weather may at any moment render help too late for many of the victims, and much more difficult for the remainder. To introduce a stranger into the home circle may seem to some a venture of faith, but the visit need not be indefinitely prolonged, for we have high authority for believing that the food-supplies of the world can be increased very rapidly,[1] while there are tens of thousands of families with a working margin, it may be small, but just large enough to take a guest. Voluntary rationing is notoriously difficult, but there is little reason to fear that the automatic reduction of the standard of life caused by one additional mouth will have any unpleasant result. On the contrary, the experience may restore to many citizens that sense of championship of high international ideals which took them into the conflict in 1914.

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[1] Sir R. Henry Rew: "Food-supplies in Peace and War," Longmans, Green, and Co., 1920.

THE LANCET, Jan. 3rd and 10th, 1920.

THE Manager will be obliged to readers who have not any further use for their copies of THE LANCET of the above dates if they will kindly return them to him at 1, Bedford-street, Strand, W.C. 2. The postage on the numbers is one penny each. He will be pleased to pay the full price for copies returned, as he is disposing of them again to new subscribers.

CONTROL OF VENEREAL DISEASE:

THE QUESTION OF PROPHYLAXIS.

Memorandum of the Medical Women's Federation.

IN an eight-page foolscap pamphlet issued by the Medical Women's Federation from 9, Clifford-street, London, W. 1, are contained the considered views of the Federation in the form of "Some Suggestions as to the Duty of the State in the Control of Venereal Disease." The conclusion was unanimously reached by the Committee appointed to draw up the Memorandum, which was subsequently approved at an extraordinary meeting of the Federation, that "the chief and most important part of the task with which society is faced is such a reform of our social structure and of our moral habits as will gradually eliminate from society conditions which have led to the prevalence of venereal disease." In regard to prophylaxis, the Federation associates itself with the findings of the Interdepartmental Committee on Infectious Diseases in Connexion with Demobilisation.[1] The Memorandum proceeds:—

"It is obvious from this Report that even under the conditions of discipline of men on active service during war there was no proportionate reduction in the infection rate of those sections of the forces in which the prophylactic packet system was most thoroughly used. In the British Forces the infection rate remained practically the same throughout the war, though during the latter part of it the packet system was very largely used, while in the Australian Forces, where the system was used probably more thoroughly and with more enthusiasm than in any other section, the infection rate was considerably higher at the end than at the beginning.[2] In certain units of the forces, however, where during the recent war the packet system was used with great zeal and energy, the percentage of venereal disease is said to have been afterwards very markedly diminished.[3] It must be remembered that the zeal and energy of the administration was certainly not confined to this one method of stamping out the disease. Also the very fact of the enthusiasm and activity of the officer in command would communicate itself to the whole unit, who would be stimulated to use precautions against the disease. It would be impossible that such personal influence should make itself felt when the system became part of the general civilian sanitary administration. The civil health authorities could not command and control the general population as can be done in the army. The evidence laid before the Interdepartmental Committee on Infectious Diseases in Connexion with Demobilisation points to the conclusion that though 'certain drugs, if properly applied, are efficacious in preventing venereal disease,' yet it is not possible in the army, and would be still less possible among the civil population, to make certain that the drugs were properly or skilfully applied. The immunity obtained by their use would be quite certainly incomplete. We agree with the Committee in its statement that the issue of prophylactic packets 'tends to give rise to a false sense of security, and thus to encourage the taking of risks which would not be otherwise incurred,' and also that 'under any mechanical system which does not give absolute protection, the venereal incidence must be proportionate to the risks taken,' and we hold that if the introduction of such a system leads to an increase in the number of exposures, as would, we consider be practically certain to be the case, it might very easily absolutely increase the spread of the disease.

Prophylactic measures in women.—"In women either prophylaxis or early preventive treatment would be used as a preventive of conception. The complete carrying out of such a system must include the distribution of packets and the placing of posters drawing attention to the system in public lavatories and other suitable places. Whether or no safety could be obtained, promiscuous intercourse would be looked upon as free from risk of infection, and to a great extent free from risk of conception, and as recognised and protected by the State and health authorities, who would become in the eyes of the ignorant the consenting party to their actions. We believe that by no such method can the problem of venereal disease be met, and that a phase of society would be produced as vicious and degenerate as any of which history has record. Safety from infection would not be attained, while moral degeneration and sex excesses would rot the very foundation of society.

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[1] Cmd. 322. Prophylaxis against Venereal Disease.
[2] L. W. Harrison: Journ. Roy. San. Inst., 1919, p. 100.
[3] G. A. Reid: Ibid., p. 85.

"We wish to make it quite clear that we are not advocating the retention of disease in order that the fear of infection may deter from promiscuous indulgence. Our point is that promiscuous indulgence would not be safe, while the attitude of the State would encourage the false idea that it was safe and countenanced by the authorities, and so would inevitably lead to increased indulgence and quite possibly to increased disease.

"*Early preventive treatment.*—The provision of early preventive treatment at the public expense at clinics by skilled nurses, male and female, which clinics are to be open at all hours of the day and night, so that sterilisation of the parts may be skilfully carried out within a short time of the act, is also condemned by us, for the same reasons for which we condemn the prophylactic packet system. We protest against the use by the public authorities of any such system, which must lead to the impression that casual intercourse is being made safe and countenanced by the State, and so to the destruction of the sanctions of conduct in sex matters on which our society is based.

"The sale by chemists, to those who wish to purchase them, of calomel ointment or of permanganate of potash solution is a matter with which we have no concern as long as the public is aware that these things are not remedies for venereal disease and that chemists are under a legal obligation not to sell them for the purpose of treatment of these diseases."

The Memorandum concludes with a statement of the constructive policy of the Federation.

The Mansion House Meeting.

A largely attended meeting, convened by the Society for the Prevention of Venereal Disease, was held at the Mansion House on Feb. 5th, the Lord Mayor presiding. Lord Willoughby de Broke, President of the society, moved a resolution to the following effect:—

"It is obvious that the best way of avoiding venereal disease s to abstain from promiscuous sexual intercourse. It is, however, certain that a large number of persons continue, in spite of moral teaching, to expose themselves to risk and so to incur and spread disease amongst the community, the chief sufferers being women and children. Venereal disease has become a menace to national health and prosperity, and n view of the proved fact that infection can be prevented by means of self-disinfection, if properly applied, immediately after exposure to risk, it is necessary to instruct the public as to (*a*) the vital importance of self-disinfection at the time of exposure to risk as a preventive of venereal disease; and (*b*) the methods of application."

Lord Willoughby de Broke contended that the efficacy of early self-disinfection as a preventive of venereal disease had been proved during the war, and he was satisfied that the method could be applied to the civil population. It was, he said, immoral to suppress the truth, and the society over which he presided would not accept the responsibility of concealing from their fellow citizens one of the principal means of stamping out a terrible scourge.

Sir James Crichton-Browne spoke of the grave objections applying to "venereal lavatories," as he termed early treatment centres, where the protection offered came too late to be effective. Such centres would be costly in large towns and impracticable in rural areas. Those attending them would lay themselves open to suspicion and possibly blackmail. The general public should, he said, be informed as to the vital importance of self-disinfection and the means for carrying t out.

Sir E. Ray Lankester said that in order to realise its purpose of diminishing and possibly abolishing the awful damage to life and health due to venereal disease the society intended to spread as widely as possible an effective knowledge of the use of disinfectants for its arrest. They intended to take steps to ensure that it should be an easy matter for anyone to purchase, and to keep in a form ready for immediate use, the two disinfectants approved by authority—namely, permanganate of potash, 5 gr. in half a pint of water, and calomel ointment of the strength of 33 parts by weight of calomel to 67 of a mixture of lanolin and vaseline.

After Sir Arthur Sloggett, Sir G. Archdall Reid, Miss N. March, Dr. A. Mearns Fraser, Miss E. Rout, and Sir W. Arbuthnot Lane had spoken in support of the resolution, it was put to the meeting and carried unanimously.

Directions for Immediate Self-disinfection.

The instructions for immediate self-disinfection, as issued by the Society for the Prevention of Venereal Disease, are as follows in respect of (A) materials required, and (B) methods of application.

A. Materials required.—(*a*) Some cotton-wool. (*b*) A bottle containing a solution of potassium permanganate, 1 in 1000. (Details below.) (*c*) Some 33 per cent. calomel ointment. (Details below.)

B. Methods of application.—I. If exposure to risk takes place out of doors or where complete disinfection is impracticable: (1) Make water. (2) Soak a swab of cotton-wool with the solution of potassium permanganate. Draw back the foreskin, carefully swab the head of the penis and the under surface of the foreskin, especially at the opening of the pipe. These steps must be taken within an hour of exposure to risk. (3) On returning home the sexual organs must be thoroughly washed with soap and water, and 33 per cent. calomel ointment well rubbed into the penis, drawing back the foreskin as in (2) above. This must be done within six hours of exposure to risk.

II. If exposure to risk has taken place indoors, a more complete immediate disinfection should be made: (1) Make water; (2) wash the sexual organs and parts round with soap and water; (3) swab with potassium permanganate solution as in "I"; (4) rub calomel ointment well into the penis.

Note I.—The *careful* swabbing of the penis with the solution of potassium permanganate is the *most important* measure.

Note II.—It is an excellent additional safeguard to apply the calomel ointment *before* intercourse.

III. If exposure to risk has occurred whilst under the influence of alcohol so that the precautions recommended in "I." and "II." have not been promptly taken, the chance of infection may be considerably lessened, though it cannot be removed, by taking as soon as possible all the steps mentioned in "II.," well rubbing the ointment in for ten minutes, and in addition syringing the pipe with potassium or permanganate solution of half the strength recommended for sponging the outside; that is, add an equal quantity of water to the solution, and squirt about a teaspoonful up the pipe with a *small* glass syringe. Do this three times, and then fill the pipe and hold the solution in for two minutes by pinching the lips of the pipe. This method is not nearly as reliable as the *immediate* disinfection, and is useless after 12 hours.

IV. If none of the above precautions have been taken, and there is reason to believe that infection is probable, a doctor should be consulted at the earliest possible opportunity.

Note.—The above methods of self disinfection are only useful for *preventing* the diseases and are *quite useless for cure or treatment* if the diseases have already started.

V. *Prescriptions for materials required.*—(*a*) Potassium permanganate solution: dissolve one five-grain tablet of potassium permanganate in half a pint of water. Four tablespoonfuls of this solution in a small bottle will be enough for one application. (*b*) Calomel ointment (special strength): Calomel 3 parts, lanolin (hydrous) 4 parts, white vaseline 2 parts. Half a small teaspoonful will be plenty for one application.

Education of the Public.

The address given by Sir W. Arbuthnot Lane at the meeting at the Central Hall, Westminster, on Dec. 16th last appears in full in the February issue of *Public Health.* Sir W. A. Lane states that the object of the Society for the Prevention of Venereal Disease is based upon the principle of spreading the truth, the whole truth, and nothing but the truth about venereal diseases, their causation, prevention, effects, and treatment—in other words, "we must educate the public." He goes on to say:—

"It is obvious that in the vast majority of cases chastity is the only way by which venereal diseases can be avoided; yet we recognise that the nature of mankind is such that irregular intercourse will continue to take place in the future, as it has done in the past, and that means must be adopted to reduce infection to a minimum in order that the community shall suffer as little as possible and that these diseases shall be eliminated from amongst us. To attempt to terrorise men and women by depicting the results of these diseases in exaggerated terms is futile, and will have as little effect on them as the fear of an imaginary hell exerts upon an educated people. Should men be impelled to indulge a natural healthy appetite, which varies widely in intensity in different people, such persons should know the most effectual means of avoiding infection and how and when these means should be employed to the best advantage. They should be in possession of the necessary equipment of drugs in a convenient form, so that they may be employed as soon as possible after intercourse.

"The society," he concludes, "hopes soon to have sufficient means at its disposal to spread the knowledge of the preventive measures against these maladies among the members of the lay public, and to reduce and finally exterminate venereal disease."

The Alliance of Honour Campaign.

At a public luncheon given on Feb. 3rd in connexion with the Alliance of Honour the Dean of Lincoln declared that to the wrong administration of the War Office was due much of the evil to be found among the young men who had served in the army. There was nothing in the King's Regulations placing any obligation upon a commanding officer to put down immorality in his command. The time had, he said, come when this state of affairs should be changed, and the Prime Minister was shortly to be approached upon the subject.

TUBERCULOSIS.

Local Hostility to New Sanatoriums.

THE generous offer of a large country house in the Newcastle area for the treatment and training of disabled ex-Service men has recently fallen through on account of local opposition to the men as neighbours. The objections raised by local residents, whenever the establishment of a sanatorium in their neighbourhood is mooted, are so inevitable and have become so stereotyped that their selfishness is apt to be overlooked. Signatures are quickly compiled, "expert" evidence is mobilised, all the arts of obstruction are practised, and a formidable case is presented against the sanatorium, the establishment of which is already hampered by almost countless obstacles. As recently as last November a case of organised local protest against the establishment of a sanatorium was dealt with by a public inquiry, and the evidence against the sanatorium was so standardised, if we may use such a term, and also so illuminated by unconscious humour, that it deserves special notice. The inquiry was conducted by a medical inspector on behalf of the Ministry of Health. On the one side the local council applied for sanction to its purchase of a fine old country house, much used at one time by James I. when hunting in Epping Forest, for the purpose of converting it into an institution for the treatment of tuberculosis. The opposition on the other side was represented by various local interests. The evidence in favour of the establishment of a sanatorium included the statement, from a professor of hygiene in the University of London, who had visited the estate on the previous day, that it was "ideal for the purpose." A characteristic feature of the evidence given on behalf of the protesting residents was the anxiety betrayed lest their district should offer a good enough climate and subsoil for the prospective patients. The estate, it was argued, was in the fog area, both soil and subsoil were unsuitable, and there were no opportunities for expansion at a later date should this be found desirable. Even the dew that waters the area was referred to as being too heavy for consumptives. In fact, a most lugubrious picture was drawn of the local climate, and the anxiety of its residents to save the consumptive from its evil effects was pathetic. We confess that this spirit flourishes to a certain extent on our own lack of exact knowledge concerning the infectiousness of tuberculosis and other problems connected with this disease. Till problems such as those of the subsoil in relation to tuberculosis are solved local residents, medical or lay, and "experts" of any denomination, would do well to refrain from dogmatising.

Krysolgan in Tuberculosis.

Krysolgan is a chemo-therapeutical preparation of gold, introduced in Germany some three and a half years ago. Feldt[1] discusses its present position, remarking that any remedy for tuberculosis must pass two tests: first, it must give rise to focal reaction after intravenous injection, and secondly, such focal reaction must be followed by reparative changes. After these, any variations or intermissions in its action are to be studied. The production of focal reaction seems to have been realised, having been observed in external tuberculous ulcerations. Schnaudigel in a long series of ophthalmic patients reported that krysolgan acted in this respect much like tuberculin, the reaction being either the ordinary inflammatory one, or more frequently "pallor phenomenon." He described a large proportion of cures. Another ophthalmologist wrote similarly, and scientific opinions were, on the whole, favourable; indeed, the diagnostic use of krysolgan was proposed. Bandelier and Roepke used the remedy, especially for laryngeal cases. Combined use is suggested with other agents, e.g., the iodine preparation "alival," and especially tuberculin, the gold preparation being given a day after the tuberculin, when the focus of disease had thus been rendered hyperæmic. Moreover, observation showed that a focal reaction caused by tuberculin could be controlled by a dose of krysolgan, both focal and constitutional signs being mitigated. In this way large doses of tuberculin could be used with impunity. In pyrexial cases Schröder is at present trying small doses of tuberculin, beginning, say, with a thousandth of a milligramme, and simultaneously—that is, on the same days—small doses of krysolgan, from 0·025 g. to 0·5 g. Rapid reduction of the temperature to normal is claimed even in obstinate cases. In all varieties of tuberculosis, however, refractory cases are met with where krysolgan seems without effect. These "gold-refractory" patients, it is suggested, require other specific means in addition: a tuberculin course, or the injection of metallic catalysts, or possibly very small doses of mercury. The author regrets the present scarcity of both of these remedies.

The Work of an Urban Dispensary.

The annual report of the tuberculosis officer for Newcastle-on-Tyne for 1918 shows a decrease in the number of deaths from tuberculosis, most noticeable in the case of non-pulmonary tuberculosis, the death-rate from which was equal to the lowest on record in the city. Investigations into the duration of fatal pulmonary tuberculosis showed that the average was 29 months. The average period between notification and death was 13·6 months. In other words, each patient who died during the year must, on the average, have been ill for 15·4 months before notification. No fewer than 50 per cent. of persons dying from pulmonary tuberculosis had either not been notified before death (18·5 per cent.) or they had died within three months of notification (31·5 per cent.). With regard to family history it was found that among 320 fatal cases there were 132, or 41·25 per cent., with a history of pulmonary tuberculosis in a near relative. The interesting observation was also made that, of those who died of pulmonary tuberculosis, the individuals with a history of phthisical parentage died at a considerably earlier age than others without this history. Evidence of the growing usefulness of the dispensary is found in the increasing number of attendances, the figures being 11,517 as compared with 9286 in 1917 and 7758 in 1916. The work of the dispensary nurses is also reviewed, and the fact noted that when tubercle bacilli have been found in the sputum the patient is visited at least once a month with a view to medical instructions being carried out, and spread of infection to other members of the family being prevented. Of the 1080 sputums examined at the dispensary only 233 were found to contain tubercle bacilli.

A Sanatorium for Merchant Seamen.

At a recent meeting of the Court of Governors of the Seamen's Hospital Society the Committee reported that in connexion with the new hospital for tropical diseases at Endsleigh-gardens, N.W., an effort was being made to establish a sanatorium for seamen on the Hampshire Downs. The percentage of cases of tuberculosis occurring among seamen is not unduly high, but the circumstances of the sailor's calling render it difficult for him to await his turn on the long list of those seeking admission. In the meantime he is tempted to put to sea again with the disease still active, when the conditions on board tend to aggravate the disease and to make him a source of danger to his shipmates. An initial grant has been allocated by King George's Fund towards the purchase of Bramshott Place, Hants, approved for the purpose by the Ministry of Health. A sum of £70,000 is needed for the establishment of the sanatorium, of which the P. & O. Company and its associates have promised £10,000 and Messrs. Furness, Withy and Co. £2500. The office of the fund is at 122, Leadenhall-street, London, E.C. 3.

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[1] Internationales Centralblatt für die gesamte Tuberkulose-Forschung, Nov. 30th, 1919.

Influenza in Tuberculous Patients.

The outstanding feature of the November number of the *American Review of Tuberculosis* is a paper by Professor Maurice Fishberg on influenza and tuberculosis. He writes: "I have not met a single case of phthisis during the past year which could be ascribed to have followed influenza." After a careful review of his own and others' experience, he maintains that epidemic influenza bears no ætiological relationship to tuberculosis, and that dormant tuberculous lesions are not stirred into activity by influenza. This disease does not run a more acute, severe, or fatal course in the subjects of tuberculosis than in healthy persons, and, as vital statistics and sanatorium reports show, the mortality from tuberculosis has not increased during the past year, although influenza has been raging. He adds: "The pulmonary sequelæ remaining after influenza are almost without exception non-tuberculous in character, and do not require the treatment accorded to phthisical patients."

The *Paris Médical* for Jan. 3rd is devoted to a series of papers on tuberculosis, including a retrospect and a forecast by Dr. P. Lereboullet and Dr. L. Petit. In a review of the relation of influenza to tuberculosis, Dr. M. P. Ameuille comes to the conclusion that, in the course of the last epidemic, influenza rarely attacked the tuberculous, and when they contracted influenza this disease ran a peculiarly mild course. The opinions he expresses as to the effect of influenza on the further course of tuberculosis are guarded. A paper by Dr. C. Sabourin deals with menstruation in relation to tuberculosis.

The *Zeitschrift für Tuberkulose* for December, 1919, contains a paper by Dr. E. Dorn, whose findings with regard to the relation of influenza to tuberculosis are n close accord with Professor Fishberg's. The writer found that among 184 tuberculous patients at the Wilhelmsheim Sanatorium, 111, or 60 per cent., contracted influenza, but only in 5, or 4·5 per cent., was the pulmonary disease temporarily or permanently aggravated. Another curious observation was the reaction of the sanatorium patients to different waves of the epidemic. In the summer of 1918 more than half the patients contracted influenza. The second wave, which swept over the neighbourhood in the autumn and winter of 1918, did not affect a single patient, although the virulence of the influenza was great, and the opportunities for infection by visitors were numerous. The writer admits that the processes by which this evident immunity was acquired are obscure.

AID-POSTS FOR EPIDEMICS IN DURHAM.—The county medical officer for Durham has issued a memorandum, in anticipation of the possibility of another epidemic of influenza, urging the appointment of more district nurses and the organisation of emergency home helps. In order to obviate the difficulty of getting into touch with cases needing assistance he suggests the formation of emergency committees, and the establishment of aid-posts at convenient centres, as in Sunday-school rooms, council offices, and welfare centres. The emergency committee could meet at the centre to discuss the position from day to day if necessary. A responsible person should attend twice daily o take messages left by doctors and others requiring help, and to deal with the cases on the best lines possible. Stores of nursing requisites should be kept at the aid-posts, such as bed-pans, mackintoshes, feeding cups, pneumonia ackets, dried milk, Benger's food, and other invalid material. Voluntary workers would be of great assistance at these aid-posts in dealing with the stores and food. He suggests, urther, that it would be a good plan to keep a reserve of nursing requisites at isolation and union hospitals for use in epidemics.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Postal Services in Dublin: Medical Practice Embarrassed.

THE telephone service in Dublin has been thoroughly unsatisfactory, and is probably worse than in any city of importance in the kingdom. Steps have now been taken to reduce the postal service to the same level. Prior to the war we had a good postal service, but naturally during war-time medical practitioners had to put up with many inconveniences. They, however, were trivial compared with what has to be suffered under the new arrangements. Almost all night work is to cease at the post offices. Two consequences of pressing importance to medical men result. One is that they cannot get their morning letters before the hour at which they usually begin their morning round. The other is that by the time they have finished their day's correspondence the last collection for the night has been made. A medical man is therefore forced to make his appointments two days at least ahead, and if he finds it necessary to alter an appointment he can only do so by telegraph. As an example of the new system, suppose a patient in Dublin writes to a medical man on Monday asking for an early appointment. The letter will be delivered some time on Tuesday. The doctor sends his reply on Tuesday evening, and it will reach his patient on Wednesday afternoon. The earliest appointment cannot be before Thursday. The cross-Channel service is equally bad. The postal authorities now demand an interval of 12 hours in the case of the day mail and three in the case of the night mail between the posting of a letter and its despatch from Dublin. Business must suffer, but medical men feel that lives will be lost.

Hospital Strike at Carrickmacross.

The nurses of Carrickmacross Fever and General Hospital in co. Monaghan have struck work for a minimum salary of £52 per annum, with subsistence allowance of £76. It is said that the patients are without nursing attendance, and that one admitted since has died, though this may in no way be connected with the strike. Appeals to other hospitals have brought no response up to the present—or so I am informed—a circumstance that may be due simply to the scarcity of nurses. Railway men, miners, and dockers, when on strike, get more sympathetic treatment from the press than nurses or doctors.

Coleraine Cottage Hospital.

At the annual meeting of Coleraine Cottage Hospital held on Feb. 6th it was reported that the work of the institution was steadily increasing, there being in 1919 as many as 261 in-patients and 179 out-patients. Financially, the income exceeded the expenditure during 1919 by £11 19*s.* 9*d.* The Coleraine War Memorial Committee has now £1700 in hand, and the chairman, at the annual meeting of the cottage hospital, suggested that it might be handed over as the nucleus of a fund for the erection of a war memorial hospital for Coleraine.

Epidemic Disease in Belfast.

It is satisfactory to know that scarlet fever and measles are quietly subsiding. As the old pathologists used to explain, the virus has "fermented itself out," but notification, isolation, and disinfection have not had a triumph in stopping the epidemics in Belfast.

Ulster Medical Society.

At a recent meeting of this society the following resolution, proposed by Professor J. A. Lindsay and seconded by Dr. J. McCaw, was passed unanimously:—

> "That in the opinion of the Fellows and Members of the Ulster Medical Society it is essential that a clinical examination in ophthalmology, conducted by ophthalmic surgeons, be part of the final qualifying examination for medical degrees and diplomas as heretofore in all Ireland. This seems absolutely necessary if ophthalmology is to retain the position its importance entitles it to in the education of the future medical profession of this country."

Feb. 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Night Medical Service in Paris.

M. Roux, Prefect of Police, has just issued an order concerning the reorganisation of the medical service in Paris at night. There is to be a service of 30 doctors appointed by the Prefect. The duration of their appointment will be three years at the most, with fixed annual pay of 3000 francs, and the sum of 50 francs for each night of actual work to the five medical men detailed as substitutes. Paris is divided into five sections, in each of which a doctor is permanently on duty from 10 P.M. till 7 A.M. from Oct. 1st to March 31st, and from 10 P.M. to 6 A.M. from April 1st to Sept. 30th. The site of his activities is to be a central police station, where a room containing a bed will be available. The call for the doctor will be made to the nearest police station by the patient; thence a telephone message will be sent to the chief of the municipal police, who will send a motor-car to take the doctor to the patient and then on to the medical station. Each car is furnished with a case containing urgent first-aid appliances, such as dressings, cachets, ampoules, and a small collection of syringes and sterilised instruments. The medical service is so organised that the turn of each doctor comes round once in six days. The labour cases will be catered for by the midwives attached to the night medical service, and the tariff for their visits is fixed as follows: simple visit, 15 francs; simple labour, 35 francs; twins, 60 francs. If a midwife has to resort to a doctor for help she will be able to requisition his services on the lines indicated above.

Overcrowding in Maternity Hospitals.

The rise in the number of births, from an average of 167 a day in December to 203 a day in the first fortnight of January, has occasioned much overcrowding in the maternity hospitals. The fact is aggravated by an evident desire for economy on the part of certain members of the population. One distressing consequence of the situation must unfortunately be chronicled; puerperal fever has recently appeared at several places, and its incidence must be attributed to overcrowding, inadequate equipment, and lack of stores. The only way likely to be efficacious at the moment to prevent its extension is to supply such help to lying-in women as will enable them to remain in their own homes. M. Autrand, Prefect of the Seine, has formed this opinion, and after consultation with the Directeur de l'Assistance Publique he has under consideration the allocation of a new bounty of 50 fr., which would be additional to the sum usually given. Moreover, the regular fee paid to midwives for conducting a labour at the patient's home would be raised from 50 to 70 fr.

Excess Profits Tax Applied to Medical Men.

The Treasury has declared its intention of enforcing on medical men the war profits tax paid by business men and manufacturers on profits made since 1914 in excess of the average of the five years preceding the war. At Marseilles, in spite of protests, the tax has already been imposed. Paris doctors protested in advance, but a test case has resulted in the decision that medical men are subject to the excess war profits tax.

Legacies for Successful Research.

Under the will of Me. Audiffred a prize of 24,000 fr. was offered for the discovery within 25 years from April 2nd, 1896, of a curative or preventive medicine against tuberculosis which should be absolutely certain. The Academy of Medicine has not hitherto felt sure that anything fulfils these conditions. The interest on the capital has not been distributed, though this could have been done, doubtless because it is too small at 3 per cent. to be of much use. If the prize is not won by April 2nd, 1921, the sum of 24,000 fr. and the accumulated interest thereon will become the property of the Academy. The present intention is to found a new prize with the same object, but this time to distribute the interest in annual grants to research workers in accordance with the scheme of the Academy of Science for the Breant prize for research into Asiatic cholera. The interest will be larger because the Academy, having become the owners of 50,000 fr. through accumulation of interest, will sell the present securities and will be able to get 6 per cent. for their money. This will mean 3000 fr. for distribution every year.

Encephalitis Lethargica.

Cases of encephalitis lethargica are apparently becoming more numerous and the area of distribution of the disease is growing larger. Cases are reported from Versailles, Lille, Toulouse, Châlons-sur-Lâone, Vienna, and Mulhouse. M. Remlinger has reported cases occurring in Algiers and Tunis. They appear to be characterised mainly by the long duration of the period of somnolence. The mortality is everywhere about 25 to 30 per cent.

Feb. 9th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

The Effect of Housing and Sanitary Conditions on Maternity and Child Welfare in India.

A CORRESPONDENT of the *Pioneer* makes some pertinent remarks on this subject. On all sides schemes are being promoted to improve the condition of Indian mothers and to provide skilled attendance at childbirth. But their antenatal conditions cannot be ameliorated until the housing conditions have been improved. Improvement is not likely to be rapid, since the housing of menial classes, even of those employed by Government mills, railways, &c., under European or educated supervision, is still very bad. The employees are lodged in rooms 10 ft. by 10 ft., and more often than not built back-to-back to save a party wall. The usual type of house has in front a useless 5 ft. verandah and a zenana courtyard surrounded by a 7 ft. wall, in which is also housed the family's latrine. This arrangement effectively prevents the entrance of light and air into these cells, the condition of which, with neither light nor through ventilation, is anything but conducive to general health of a family. Improvement of antenatal conditions for an expectant mother is thus impossible. It is useless under these conditions of housing to talk of inculcating domestic sanitation and hygiene; nor, considering the dirty earthen floors and the cells used as living rooms, can infantile mortality be reduced from the appalling figure at present prevailing among the poorer Indian classes.

Bacteriology in India.

From the annual report of the Bacteriology Laboratory, Muktesar, we learn that the total receipts from the sale of the laboratory products amount to Rs. 3,42,402–11–0, and that the expenditure has been Rs. 4,37,712–13–4. The receipts include arrears of the previous year, and bills amounting to Rs. 67,890–1–3 still waiting payment have to be carried over to next year's account. Had not the vaccines and serums supplied to the military authorities been free of charge Rs. 1,38,330–2–9 would now have been available towards their production on a large scale. The result should be greatly to reduce the menace of cholera to troops on service, and we may wonder why this method was not put into practice in the recent operations on the frontier.

An All-India Chemical Service.

A Committee has been appointed to deal with the question of an All-India Chemical Service. Details are now available which show that, unsatisfactory as is the existing position from the point of view of the employer, it is even less satisfactory from that of the employee. The inability of local governments to judge the scientific officers which they employ, or to replace them when they leave or fall ill, has been pointed out. The small but not unimportant results achieved, with the help of the Indian Munitions Board, in marshalling the scientific forces of the country threw into contrast the vast field of possibilities in which no consistent policy is veloping economic assets. However, certain more or s successful attempts have been made from time time to build up an organisation of officers for entific work. Instances such as the Geological rvey of India and the Indian Agricultural Service, ove by their success the advantages of their stems, though the systems of these two departments fer radically from one another. The importance of ganising scientific workers is now widely recognised, l the question for consideration of the Government of lia is the form of organisation best suited to Indian nditions. A scheme for All-India services as a basis of entific organisation has been put forward by the lian Industrial Committee. The Government of lia have decided to deal in the first place with the se of officers employed under Government as chemists, l have, with the concurrence of the Secretary of ate, appointed a Committee with the following terms reference :—

. To consider whether an All-India Chemical Service is best and most suitable method of overcoming the iculties and deficiencies pointed out by the Indian lustrial Commission.

. In the event of the Committee approving the principle [illegible] All-India Service, to devise terms of recruitment, ployment, organisation, to indicate the extent to which mists already in Government employ should be included that service, and to suggest what should be the relations the proposed organisation with the public and with partments of the Government of India and of local vernments.

. In particular to frame proposals for the location, scope, l organisation of institutions for chemical research.

Professor J. F. Thorpe, professor of organic chemistry the Impérial College of Science and Technology, ndon, has been appointed President, and Dr. J. L. nonsen, F.I.C., forest chemist, Dehra Dun, has been pointed secretary of the Committee.

URBAN VITAL STATISTICS.

(Week ended Feb. 7th, 1920.)

nglish and Welsh Towns.—In the 96 English and Welsh wns, with [illegible] aggregate civil population estimated at 500,000 persons, the annual rate of mortality, which had n 15·6, 15·3, and 15·9 in the three preceding weeks, was in 15·9 per 1000. In London, with a population slightly eeding 4,000,000 persons, the annual death-rate was 17·2, 0·4 per 1000 above that recorded in the previous week, ile among the remaining towns the rates ranged from in Rotherham, 7·6 in Gloucester, and 8·1 in Swindon, 22·1 in Liverpool, 22·6 in Grimsby, and 25·2 in eat Yarmouth. The principal epidemic diseases caused deaths, which corresponded to an annual rate of per 1000, and comprised 97 from diphtheria, 96 m whooping-cough, 90 from measles, 63 from infantile rrhœa, 34 from scarlet fever, and 3 from enteric er. Measles caused a death-rate of 2·3 in Grimsby; ooping-cough of 1·3 in West Ham, 1·4 in Leyton, 1·6 in msby and in Birkenhead, and 1·7 in West Hartlepool; l diphtheria of 2·5 in Hornsey. The 98 deaths from uenza were 32 in excess of the number in the previous ek, and included 20 in London, 11 in Leeds, 10 in Liverpool, n Birmingham, and 4 each in Manchester, Bradford, and effield. There were 2487 cases of scarlet fever and 2014 diphtheria under treatment in the Metropolitan Asylums spitals and the London Fever Hospital, against 2550 and 8 respectively at the end of the previous week. The causes 39 deaths in the 96 towns were uncertified, of which were registered in Birmingham, 4 in London, and 3 in nderland.

cotch Towns.—In the 16 largest Scotch towns, with an regate population estimated at 2,400,000 persons, the nual rate of mortality, which had been 16·1, 15·3, and 15·9 the three preceding weeks, fell to 14·7 per 1000. The deaths in Glasgow corresponded to an annual rate of per 1000, and included 6 each from diphtheria and antile diarrhœa, 3 from scarlet fever, 2 from whooping-gh, and 1 from measles. The 83 deaths in Edinburgh re equal to [illegible] rate of 12·7 per 1000, and included 2 from htheria, and 1 each from scarlet fever and infantile rrhœa.

rish Towns.—The 153 deaths in Dublin corresponded to an nual rate of 19·2, or 3·4 per 1000 above that recorded in previous week, and included 5 from whooping-cough, rom infantile diarrhœa, 2 from diphtheria, and 1 from asles. The 146 deaths in Belfast were equal to a rate .8·4 per 1000, and included 12 from measles, 6 from scarlet er, and 2 each from enteric fever, whooping-cough, htheria, and infantile diarrhœa.

The Services.

THE HONOURS LIST.

THE following awards to medical officers, for valuable services rendered in connexion with military operations in North or South Russia or in Persia are announced :—

C.M.G.—Capt. (acting Lt.-Col.) D. C. L. Fitzwilliams, R.A.M.C. (T.F.).

C.B.E.—Temp. Capt. (acting Maj.) E. S. Marshall, M.C., late R.A.M.C.; Col. G. St. C. Thom, C.B., C.M.G., late R.A.M.C.; Lt.-Col. (temp. Col.) C. H. Bowle-Evans, C.M.G., I.M.S.

O.B.E.—Maj. (acting Lt.-Col.) A. W. A. Irwin, R.A.M.C.; Maj. (acting Lt.-Col.) J. M. B. Rahilly, R.A.M.C.; Capt. (acting Lt.-Col.) T. H. Richmond, R.A.M.C. (T.F.); Capt. (acting Maj.) C. G. G. Keane, R.A.M.C.; Temp. Capt. (acting Maj.) A. H. Macklin, R.A.M.C.; Capt. (acting Lt.-Col.) J. F. W. Sandison, M.C., R.A.M.C. (S.R.); Temp. Capt. (acting Maj.) T. V. Somerville, M.C., R.A.M.C.; Capt. T. A. Butcher, R.A.M.C. (S.R.); Maj. T. S. Dudding, R.A.M.C.; Maj. (acting Lt.-Col.) W. Lapsley, I.M.S.

To be Brevet Major.—Capt. H. C. Rook, R.A.M.C. (S.R.); Capt. C. S. P. Hamilton, D.S.O., R.A.M.C.; Capt. (acting Lt.-Col.) H. R. B. Gibson, I.M.S.

D.S.O.—Maj. A. Irvine-Fortescue, R.A.M.C.

M.C.—Capt. J. J. Magner, R.A.M.C.

BROUGHT TO NOTICE.

The names of the following medical officers are brought to notice for valuable and distinguished services rendered in connexion with operations in North or South Russia or in Persia. All are of the R.A.M.C. except where otherwise stated :—

Capt. F. B. Beatson, I.M.S.; Lt.-Col. (temp. Col.) C. H. Bowle-Evans, C.M.G., I.M.S.; Temp. Lt. F. C. S. Bradbury; Capt. T. A. Butcher; Maj. A. Cameron, I.M.S.; Temp. Capt. (acting Maj.) T. E. Coulson; Maj. T. S. Dudding; Capt. C. M. Finny; Capt. (acting Lt.-Col.) D. C. L. Fitzwilliams; Capt. (acting Maj.) H. R. Friedlander; Capt. (acting Lt.-Col.) H. R. B. Gibson, I.M.S.; Temp. Capt. (acting Maj.) R. T. Grant; Maj. (acting Lt.-Col.) H. Hallilay, I.M.S.; Capt. W. E. Hodgins; Capt. J. Hope; Capt. (acting Maj.) L. E. Hughes, M.C.; Temp. Capt. (acting Lt.-Col.) E. R. Hunt; Maj. A. Irvine-Fortescue; Maj. (acting Lt.-Col.) A. W. A. Irwin; Temp. Capt. (acting Lt.-Col.) R. Jamison; Maj. (acting Lt.-Col.) G. A. Jolly, I.M.S.; Temp. Capt. N. Joshi, I.M.S.; Capt. (acting Maj.) C. G. G. Keane; Capt. T. Kennedy; Temp. Capt. R. N. Khosla; Maj. (acting Lt.-Col.) W. Lapsley, I.M.S.; Temp. Capt. (acting Maj.) A. H. Macklin, M.C.; Temp. Capt. (acting Maj.) E. S. Marshall, M.C.; Temp. Capt. P. N. Mitra, I.M.S.; Maj. (acting Col.) E. L. Moss, C.M.G., M.C.; Temp. Capt. J. H. Oonawala, I.M.S.; Maj. (acting Lt.-Col.) J. M. B. Rahilly; Temp. Capt. B. S. Rao, I.M.S.; Capt. (acting Lt.-Col.) T. H. Richmond; Capt. (acting Lt.-Col.) J. J. D. Roche; Capt. (acting Lt.-Col.) J. F. W. Sandison, M.C.; Capt. J. L. Schwartz; Temp. Capt. R. L. Sinclair; Temp. Capt. M. A. Singh, I.M.S.; Temp. Capt. (acting Maj.) T. V. Somerville, M.C.; Lt. (Temp. Capt.) G. E. Spicer, M.C.; Col. G. St. C. Thom, C.B., C.M.G.; Capt. M. D. Vint; Temp. Capt. (acting Maj.) J. D. Watson, M.C.; Capt. (acting Lt.-Col.) J. B. A. Wigmore.

The following, also of the R.A.M.C. except where otherwise stated, have been brought to notice for valuable services rendered whilst prisoners of war or interned :—

Lt.-Col. E. F. E. Baines, I.M.S.; Capt. R. C. Clifford, D.S.O., M.C., I.M.S.; Lt.-Col. P. H. Collingwood; Temp. Capt. H. M. Gilbertson; Temp. Capt. A. J. Gilfillan; Temp. Capt. R. W. Hodgson-Jones; Temp. Capt. J. L. Jackson; Capt. W. H. R. McCarter; Temp. Capt. A. T. I. Macdonald; Capt. S. S. Meighan; Capt. L. Murphy, D.S.O.; Maj. W. R. O'Farrell; Capt. C. E. Redman; Maj. J. Startin; Capt. A. Sutcliffe; Maj. W. I. Thompson; Temp. Capt. E. A. Walker; Capt. W. Warburton.

A communiqué has been issued from the War Office, dated Feb. 9th, containing a list of names, which will not be gazetted, brought to the notice of the Secretary of State for War for valuable services rendered, mostly in the United Kingdom, in connexion with the war. The names of the following medical men appear in the list :—

Lt. E. J. Bader, S.Afr.M.C.; Dr. G. Badgerow; Temp. Capt. E. B. Barton, R.A.M.C.; Capt. A. S. Barnes, R.A.M.C. (T.F.); Mr. W. H. Beaumont; Capt. E. C. Bradford, R.A.M.C. (T.F.); Maj. W. Bruce, O.B.E., N.Z.M.C.; Temp. Maj. A. Cambell, R.A.M.C.; Dr. E. H. Colbeck, O.B.E.; Mr. W. H. Cooke; Mr. C. Curd; Dr. M. B. Ferguson; Capt. E. E. W. Fisk, S.Afr.M.C.; Mr. R. F. Flood; Capt. C. R. Girdlestone, R.A.M.C. (T.F.); Temp. Capt. J. Graham, R.A.M.C.; Dr. A. S. Griffith; Mr. J. M. Harper; Dr. H. Henderson; Dr. A. Hodgson; Dr. L. Kidd; Dr. P. King; Maj. (acting Lt.-Col.) W. Kirkpatrick, R.A.M.C. (T.F.); Mr. F. Lace; Temp. Capt. A. W. Macgregor, R.A.M.C.; Dr. G. J. K. Martyn, Dr. E. Montgomery; Mr. J. M. H. Munro; Maj. (acting Lt.-Col.) W. Murray, R.F.A. (temp. Maj., R.A.M.C.); Maj.-Gen. Sir W. W. Pike, K.C.M.G., D.S.O., A.M.S.; Temp. Capt. A. H. Priestley, R.A.M.C.; Maj. A. G. Reid, R.A.M.C.; Mr. C. W. C. Robinson; Mr. G. J. Scale; Capt. A. L. Singer, N.Z.M.C.; Dr. C. Sturm; Temp. Capt. J. H. K. Sykes; Dr. E. C. Thompson; Lt.-Col. and Bt. Col. S. J. Thomson, R.A.M.C.; Temp. Capt. A. H. Ward, R.A.M.C.; Dr. A. M. Watson; Capt. R. W. F. Wood, N.Z.M.C.; Temp. Capt. A. E. Wynne, R.A.M.C.

ROYAL NAVAL MEDICAL SERVICE.

Temporary Surgeon-Lieutenants transferred to the permanent list of Surgeon-Lieutenants: R. Buddle, H. L. Douglas, H. A. L. Guthrie, J. F. Ainley.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. G. S. Crawford and Major M. G. Dill retire on retired pay.

Major W. Byam to be temporary Lieutenant-Colonel whilst specially employed.

The undermentioned Majors relinquish the acting rank of Lieutenant-Colonel: G. R. Painton, (Brevet Lieut.-Col.) C. W. Holden.

Temp. Capt. P. J. Lane relinquishes the acting rank of Major.

Capt. J. E. Rusby resigns his commission.

Capt. P. C. Field is restored to the establishment.

Captains to be Majors: F. R. Coppinger, A. C. Hammond-Searle, J. E. Ellcome, G. J. Keane, (Bt. Major) H. H. Blake, R. M. Dickson, (Acting Major) F. Worthington, A. L. Stevenson, B. Varvill, (Acting Major) J. W. Houston, (Bt. Major) A. Shepherd, W. J. Dunn, F. B. Dalgliesh, (Acting Major) S. G. Walker, C. E. L. Harding, (Acting Major) A. L. Foster, C. M. Rigby, (Acting Major) A. G. Wells, (Bt. Major) A. E. G. Fraser, W. H. S. Burney, T. E. Eves, L. Murphy, A. H. T. Davis, J. S. McCombe, W. J. Tobin, (Acting Major) C. McQueen, R. O'Kelly.

Temp. Capt. J. E. Thompson to be acting Major.

Lieutenants (temporary Captains) to be Captains: C. O. J. Young, R. N. Phease, C. B. C. Anderson, P. E. D. Pank, G. Moulson, W. J. F. Craig.

Captains resigning their commissions: J. W. O'Brien, W. Moodie.

Captains seconded for service under the Colonial Office: C. D. M. Buckley, W. C. Hartgill, T. J. L. Thompson.

Temp. Lieut. H. Abernethy to be temporary Captain.

Officers relinquishing their commissions:—Temporary Majors retaining the rank of Major: A. T. Duka, E. Swainston, W. Pearson. Temp. Capts. M. Murphy (on transfer to the Indian Medical Service), A. Jones (granted the rank of Lieutenant-Colonel), (Acting Major) H. B. G. Russell (granted the rank of Major), (Bt. Major) R. Bruce-Low (retains the Brevet rank of Major). Temporary Captains retaining the rank of Captain: E. N. Glover, J. W. Robertson, M. J. Murray, J. D. Doherty, W. G. Macdonald, R. F. Lunn, A. S. Morley, C. R. Smith, S. W. Allworthy, A. H. D. Smith, H. W. Bennett, F. O'B. Ellison, J. R. O'Brien, W. J. Oliver, C. F. Constant, A. V. Dill, W. Murphy, A. E. Clarke, H. F. Penman, A. M. Malcolmson, A. Trower, H. W. Hay, H. Coppock, H. A. Richards, G. Millar, J. A. F. Hatch. Temporary Honorary Captains retaining honorary rank of Captain: V. Ricci, A. H. Good.

GENERAL RESERVE OF OFFICERS.

J. W. O'Brien, W. Moodie, and J. E. Rusby, late Captains, R.A.M.C., to be Captains.

SPECIAL RESERVE OF OFFICERS.

Officers relinquishing their commissions:—Capt. A. G. S. Wallace (granted the rank of Major). Captains retaining the rank of Captain: J. P. Broom, H. M. Wharry, E. D. Roberts, H. J. Rice, D. M. Jones, W. H. Duff, P. Charnock, A. A. Fyffe, J. J. Landers, P. V. Anderson. Lieut. C. L. Hewer (retains the rank of Lieutenant).

TERRITORIAL FORCE.

Capts. (acting Majors) L. J. E. McHugh, F. R. Humphreys, A. E. P. McConnell relinquish the acting rank of Major on ceasing to be specially employed.

Capt. C. P. C. Sargent is restored to the establishment.

Capt. H. B. Porteous is seconded for service with the R.A.F.

ROYAL AIR FORCE.

Medical Branch.—Capt. F. C. Kempson to be acting Major whilst employed [illegible] Major.

Flight Lieut. A. S. Glynn to be acting Squadron Leader whilst employed [illegible] Squadron Leader.

The undermentioned Captains are transferred to the unemployed list:—C. R. M. Pattison, J. Souter, S. R. E. Davies, T. C. Backhouse, W. Enraght, J. E. Lascelles, H. W. Pigeon.

Dental Branch.—Capt. W. J. Singleton and Lieut. (acting Capt.) G. W. Allen are transferred to the unemployed list.

SUSSEX THROAT AND EAR HOSPITAL.—The new buildings of the Sussex Throat and Ear Hospital in Church-street, Brighton, erected in 1898, have outgrown their requirements—at least, for out-patients, who now number over 400 [illegible] month. Last year the total was 4809, an ever increasing number. Needless to say, the resources are taxed to the utmost, and the Management Committee is appealing for increased annual assistance, and also for donations towards erecting an additional wing. It would seem also that the in-patient department must be severely taxed in that there were 469 cases during 1919, as against 403 in 1918, the beds numbering 22. No death has occurred in the institution for two years.

Correspondence.

"Audi alteram partem."

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—Dr. C. R. Box, in his letter in your issue of Jan. 31st, asks for an expression of experience as to the character of the cases of scarlet fever during the present prevalence. In respect of the occurrence of relapses, real or apparent, my experience at this hospital has been that they have not been more frequent than usual. When rubella is epidemic certain cases are invariably passed through the receiving rooms of fever hospitals as mild scarlet fever; consequently rubella breaks out in the wards amongst the scarlet fever patients, and some of the rubella cases erroneously admitted catch scarlet fever. But rubella has not been prevalent in London lately, nor is it now, so that such untoward results are not happening. The cases, therefore, have presumably been cases of scarlet fever. Until recently the bulk of the cases have been of a mild character, as Dr. Box states. But since the end of December there has been an increase in the proportion of cases of a severe type.

Since Dr. C. Dukes drew attention to what he believed to be another infectious and epidemic disease, the "fourth disease," now close on 20 years ago, I have been on the look-out for it; but I have never been able to satisfy myself of its occurrence. Scarlet fever is clinically, and also epidemiologically, a very variable disease, with aberrant forms—namely, without pyrexia, without a rash, without peeling, with little or no sore-throat, &c.; and as has been pointed out by Dr. F. G. Crookshank in a very recent paper read before the Epidemiological Section of the Royal Society of Medicine, it is just in epidemic times that atypical cases of epidemic diseases are brought to light. Scarlet fever is so widely and continuously prevalent a disease, and its mode of dissemination is of such a kind, that it should be possible to prove the existence of a para form (if it exists more than sparsely), from clinical observation—that is, if it be the case that the ordinary and th paraform do not protect against one another.

By the way, is it asking too much to appeal to Dr Box and other writers to discard the term "Germa measles"? The disease is neither German nor measles as the latter word is now understood. The late Loca Government Board lost a splendid opportunity of gettin rid of this misnomer a few years ago, when it issue certain administrative orders relating to measles.

I am, Sir, yours faithfully,

E. W. GOODALL.

North-Western Hospital, Hampstead, N.W.,
Feb. 7th, 1920.

PHYSIOLOGICAL PRINCIPLES IN TREATMENT

To the Editor of THE LANCET.

SIR,—I much appreciate the kindly and sympatheti review of the fourth edition of my "Physiologica Principles in Treatment" which appeared in you columns on Jan. 21st. May I, however, reply to tw minor criticisms contained therein? The metaphor c "potassium iodide ferreting out the toxins which lur in lymph spaces"—which I quoted from Dr. Leonar Williams—may be more vivid than precise, and yet th meaning seems clear. The problem is to explain hov iodide lowers blood pressure in certain cases of hype piesis although it has no effect on normal bloc pressure. The suggestion is that it may help t eliminate pressor toxins as it does the syphilitic toxins The work of Barger and Dale has proved the existenc of such pressor toxins.

With regard to the remark that "it is not the author fault that acidosis has jumped off on another track (an perhaps run away altogether) since he wrote hi account of it" somewhat puzzles me; and so it do two well-known physiologists whom I have consulte The only generally accepted addition to our knowledg the subject is, I understand, Professor Haldane's proof of physiological acidosis occurring at high itudes. As I stated, my account of the newer develop- nts was based on Dr. E. P. Poulton's Goulstonian tures, which were published in your columns about ne, 1918, and Dr. Poulton is himself an original investi- or on the subject. It is true that hypotheses con- ning acidosis follow one another almost as swiftly as editions of an evening newspaper, but I think it is doubtful utility to burden the general practitioner h theories which are still in the controversial stage l which have not received general acceptance even ong laboratory workers on the subject.

I am, Sir, yours faithfully,
W. LANGDON BROWN.
avendish-square, W., Feb. 5th, 1920.

*** Dr. Langdon Brown's letter raises questions ich can only be satisfactorily settled by physician l physiologist in conference at the bedside. The dence that in hyperpiesis the lymph spaces contain ins seems to us to be at present very incomplete. e realisation that a diminished alkaline reserve in blood may mean either too much or too little d in the body, and that the condition of the od in this respect is no criterion of the con- ion of the body, further seems to us to alter whole conception of acidosis. But these plastic isiderations have hardly hardened sufficiently the written word. Physiological principles must ds change in advance of the therapeutic measures ed upon them, and it is Dr. Langdon Brown's cial merit that the latter do not lag unduly in his k.—ED. L.

THE SEX-INCIDENCE OF PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

IR,—In your report (THE LANCET, Jan. 31st) of the eting of the Edinburgh Medico-Chirurgical Society d on Jan. 21st, to which I communicated the ults of "An Inquiry Regarding the Age- and Sex- idence of Pernicious Anæmia," I am stated to have wn that the incidence of the disease "was distinctly re common in females than in males." My con- sions, eight in number, were read from the paper, l only one deals with this point. It is in the lowing terms: "Until the age of 50 the rate of idence inclines to be higher in the female than in the le. Thereafter the rate is definitely higher in males n in females."

made no statement regarding the mean rate for all iods of life in which a comparison was made between nale and male rates.

I am, Sir, yours faithfully,
eb. 7th, 1920. J. EASON, M.D.

THE INFECTIVITY OF TUBERCULOSIS.

To the Editor of THE LANCET.

IR,—Some points in Dr. H. Batty Shaw's address on erculosis (THE LANCET, Jan. 24th) have already n criticised in your last issue. Emphasis has been l on the infectivity of the disease, and as this is the x of the whole problem it seems clear that a ional scheme for prevention should now have our ious attention.

ll will agree that so long as our tuberculosis emes are based on the sanatorium they are bound fail in controlling the disease. One might go further l claim that any scheme for the treatment of erculosis of the lungs is foredoomed to failure ause death will be the inevitable result in the great jority of cases in which the disease has advanced so as to be evident on examination of the chest. In a ent report to the London Insurance Committee Dr. D. Bardswell shows that there is no appreciable longation of life in the majority of the applicants for atorium benefit in the London area, and our records Portsmouth show the same failure. Our present thods, then, are useless; when their cost is borne in mind they are worse than useless; and with a view to getting them altered tuberculosis officers everywhere ought to emphasise their poor results.

In the article referred to Dr. Shaw suggests that experimental work be done in the direction of (1) giving tuberculin to children before they are infected with tuberculosis; (2) vaccination against catarrhal infections in cases of tuberculosis. Is it his considered opinion that the adoption of these methods will be likely to lower the tuberculosis death-rate, especially when there is so little ground for the hope that tuberculin given to children before they have tuberculosis will substantially increase their resistance to the disease? In emphasising his theory that the immediate cause of the manifestations of tuberculosis in later life is auto-infection he seems to forget that infection originally is the cause of the disease, and if infection is stopped the subsequent auto-infection would be impossible. It is splitting hairs to draw fine distinctions as to when the infection may possibly take place. Let us emphasise rather that all tuberculosis is an infection, and that the logical means of controlling the disease is to try to prevent the further spread of this infection. In the present state of our knowledge prevention is the obvious line of advance, and not the elaboration of still further methods of treatment of doubtful value, methods which, after all, are based on his theory. Prevention is what the country is paying for, and it has never really been tried.

The tubercle bacillus gains access to man from two main sources: (1) through milk; and (2) from human infection.

(1) *Milk.*—It is generally accepted that the importance of milk in causing tuberculosis has been overrated, but it still remains a probable source in some cases. Ten per cent. of our milk contains the tubercle bacillus. The tuberculin test enables us to find the infected cows, and it should be an easy matter to clean up our herds, but we go on swallowing this infected milk and giving it to our children.

(2) *Human infection.*—Until segregation in large districts is adopted for all infective cases we are not attempting to deal with this source of the disease. Sooner or later this must be done, and if not done by us the next generation will do it. Dr. Shaw insists that there shall be no interference with the liberty of these infective cases unless generous treatment be provided. But if the community does all it can for them they ought to do something for the community; and if their presence in the community causes 140 deaths every day in England, in addition to an almost incalculable sickness-rate, the community can reasonably demand the removal of this danger, especially if it combines measures for its own protection with the best possible conditions for the prolongation of the lives of the victims. These conditions cannot be given in our midst where the struggle for existence is such that those with damaged lives cannot survive; they can be given only in districts specially set apart for the accommodation of tuberculous persons. The sanatoriums, hospitals, colonies, and other treatment centres could be collected together into, say, half a dozen large districts in the country, and encouragement given to all infective cases to settle in these districts. Free land, buildings, fuel, and a monetary grant per head could be given. Families could be admitted conditionally. The whole internal administration of the district should be managed by the patients themselves, including their marriage laws, manufactures, trade-unions, medical treatment, &c. Production would be carried on, though the district could not be entirely self-supporting. With such a scheme many difficulties would solve themselves, such as that of obtaining suitable employment after sanatorium treatment, and so heavily is the tuberculosis subject handicapped in getting suitable work that this reason alone would popularise such a scheme. There need be no fear that it would lead to concealment of disease provided reasonably generous conditions were given to these within the districts, as the outlook then for the patient would surely be preferable to being driven to the Poor-law infirmary in the last stages of his disease and his financial resources.

The cost of such a scheme when some production was carried on, and when the economy resulting from centralised administration is considered, could hardly be more than our present expenditure, directly and indirectly, on the tubercle bacillus. Compulsion would come later on when sufficient accommodation was available, when the inducements given in the district had popularised, and all infective cases would then be compelled to live in the district. The difficulties are great, but they are not insuperable; they must be overcome, and the Ministry of Health cannot better celebrate its birth than by tackling them. By all means let us eliminate as far as possible the predisposing causes of tuberculosis, and the greatest of these is bad housing; but until effective steps are taken to remove the massive doses of the exciting cause tuberculosis will continue to flourish.

I am, Sir, yours faithfully,
J. FAIRLEY,
Feb. 2nd, 1920. Tuberculosis Officer, Borough of Portsmouth.

AN OMISSION IN THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—By a clerical error the name of Dr. E. Hyla Greves, of Rodney House, Bournemouth, was accidentally omitted from our current issue. Will your readers kindly note this?—Your obedient servants,

THE EDITORS OF THE MEDICAL DIRECTORY.
7, Great Marlborough-street, London, W.1, Feb. 10th, 1920.

Obituary.

LAURENCE HUMPHRY, M.D., F.R.C.P.,

PHYSICIAN, ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

BY the death of Dr. Laurence Humphry, which occurred on Feb. 5th, the Cambridge Medical School has suffered a great loss, one that for the present, at any rate, seems irreparable. Dr. Humphry was mobilised at the 1st Eastern Hospital at the beginning of the war, and gave himself to his exacting duties with unselfish devotion. By no means a strong man his periods of rest were brief and infrequent; thus, as the war wore on, especially in the last year or two, his friends noticed that the strain was telling upon him. He looked thin and worn, yet still loyally worked on. In this susceptible state Humphry became affected by some obscure septic virus which, beginning in the tonsils, gradually spread to other parts in a long and painful illness, during which the hope of recovery faded away. He died at the age of 63.

Dr. Humphry was a nephew of Sir George Humphry, and inherited much of the family ability. His father was a London barrister-at-law, Laurence being born at Richmond. His mother was a daughter of Dr. McNab, of Epping, a physician of some eminence in his day. In 1889 he married Isabel, daughter of the late Professor Sir George Stokes. They had no children.

Humphry graduated at Cambridge from Trinity College in 1876, taking his M.B. four years later. He did his clinical work at St. Bartholomew's Hospital, and by his uncle's advice returned to settle in Cambridge, and soon began to build up a consulting practice in medicine. In later years, as his senior colleagues died or withdrew from the harder work, Humphry became the leading consultant in the district. He was physician to the Addenbrooke's Hospital, and had filled the offices of assessor to the Regius Professor of Physic, examiner in medicine to Cambridge and other universities, and served on the Council of the Royal College of Physicians of London. As teacher of pathology and lecturer in medicine he took an active part in the medical school, in which he was keenly interested. For 15 years—years of much change and revision—he was secretary to the Special Board of Medicine, a post to which he was admirably adapted. He was orderly and accurate in business, thoroughly familiar with the somewhat complex affairs and procedures of the University, and thus, and by his personal qualities, carried not a few difficult and thorny measures through the Special Boar and the Senate.

Humphry, who had considerable talent for research at one time took charge of the Pathological Museum He was especially interested in malformations o the heart, on which subject he wrote the articl in Allbutt's "System of Medicine." He made som researches also on the functions of the pancreas on the parathyroid glands, and on embolic aneurysm of the pulmonary artery. He often regretted that h could not do more research work, but he was liable t frequent and intense attacks of migraine which mad sad inroads upon his time and energy. As a clinica physician he was excellent; sympathetic, gentl learned, and sagacious; moreover, he was well equippe on the scientific side of pathology.

Humphry was a man of rare charm of character modest almost to self-effacement, high-minded, gentl and with a keen sense of humour; but none the les decisive and wise in judgment. He was a chivalrou colleague and an affectionate friend. He had muc taste and skill in the fine arts, in which he and his wif also had no little accomplishment. He was skilful i modelling in wax, especially his medallion work in lo relief was very delicate and refined. During the earlie part of his illness he found in this work much relie from ailment and ennui. He was a skilful and almos an enthusiastic fisherman. He passes away deepl regretted.

CECIL R. CHAWORTH LYSTER, C.B.E., M.R.C.S.

MEDICAL OFFICER IN CHARGE OF ELECTRICAL DEPARTMENT, MIDDLESEX HOSPITAL.

WE briefly recorded a fortnight ago the death of M C. R. C. Lyster, which occurred on Jan. 26th, at the ag of 60. Mr. Lyster until within a few months of hi death was in charge of the X ray and electro-therapeuti department at the Middlesex Hospital, a post which h had held for the past 17 years. He received his medica education at Charing Cross Hospital, and subsequentl became the medical superintendent at Bolingbrok Hospital, an institution he did much to foster, an with which he continued to be intimately associate until the closing year of his life.

Mr. Lyster's services to medicine, and especially t medical radiology, were many. His publications wer few, and, indeed, form no guide to the many service he so freely rendered to the cause of humanity. It i essentially in the cause of humanity that his wor should be adjudged. At the time when he began t take an executive interest in the therapeutic and dia gnostic use of X rays little was known of thei potentiality and still less of the dangers attendin their use. It was during this period that he suffere from the first effects of continued exposure to fractiona doses of the rays he was using, especially in the trea ment of cancer. The damage that he suffered wa progressive in character and eventually developed int cancer, to which he succumbed. He knew some year ago that a continuation of his work would entail add tional risks to himself, but nothing could dissuade hi from continuing to devote his energies towards alleviat ing the sufferings of others, and the work of his lat years must be viewed in the light of a real sacrific The heavy demands of the war upon his services wer cheerfully met. He undertook the responsible positio of head of the X ray and electrical department at th Army Headquarters at Millbank, though the addition strain which this work involved was a very heavy on The honour of C.B.E., conferred on him in recognitio of his work, came too late.

Mr. Lyster did much to raise the status of medic radiology, and it was largely due to his efforts in th first place that a diploma of radiology and electrolog under the ægis of Cambridge University, became a accomplished fact. He was President of the Electr therapeutic Section of the Royal Society of Medicin during 1918–19, and served on its council for a numb of years. His breadth of outlook and unselfishne guaranteed a great respect among his colleagues for h views or proposals.

r. Lyster was a man who thoroughly understood his ow-man, and was a large-hearted man in every ect. His personal charm and lofty character were reciated by a wide circle, who will feel their loss very nly.

WIN LINDSAY DUNN, B.A., M.B., B.CH. DUB.,

LATE MEDICAL SUPERINTENDENT, BERKSHIRE ASYLUM,
WALLINGFORD.

dwin Lindsay Dunn was born in 1865, the son of the Mr. Robert Dunn, of Dunfield, Waterside, Ireland, received his early education at Foyle College, donderry, winning a scholarship in 1876. After uccessful schooling he entered Trinity College, lin, as first junior exhibitioner in 1882, taking his . degree with honours in classics and English rature. He then decided upon medicine as a pro- ion, and graduated M.B., B.Ch. in 1887 with ours in anatomy. He was appointed assistant se surgeon to the Children's Infirmary, Liver- l, assistant surgeon, Liverpool Dispensaries, and, n adopting lunacy practice as a career, assistant lical officer at the West Riding Asylum, Wake- l. At the Wakefield Asylum he made several tributions to medical literature, including "Cases of lepsy Treated by Amylene Hydrate," "Case of tening of Sensory Tract of Internal Capsule," and ase of Homonymous Hemianopsia." His paper on aranoia," read at the Psychology Section of the tish Medical Association at Nottingham in July, 2, was a noteworthy addition to our knowledge of t disease, although cases had been recognised in gland before then. In 1894 he was appointed senior istant medical officer and deputy medical super- ndent of the Berkshire Asylum, Wallingford, and the death of Dr. J. W. A. Murdoch succeeded him medical superintendent.

utside his professional work, literature, Free- sonry, and sport made their appeal to Dunn. At ool he was a member of the fifteen and a good ner; at Trinity College, Dublin, a prominent oarsman, ing for the University Boat Club and winning many es, and a member of the University fifteen. He also yed for the famous Wanderers Club, but although l in the running for the honour was not capped for land. He was fond of shooting and golf and a good erman, his proudest trophy being a fine Thames t, scaling 7½ lb., which he caught at Pangbourne. was well read, talking with knowledge and originality politics and religion—his knowledge of the Bible was found. He read Greek for pleasure and was fond of nch literature.

friend writes: "A true Irishman, genial, quick- pered, impulsive, generous to a fault, the soul of pitality, excellent at repartee. His laugh was in- tious; no one who heard it could forget it. He had a ius for making and keeping friends, and his jovial e, merry blue eye, and inimitable laugh will be sadly sed."

lis death occurred after several weeks of pain ne with fortitude. Dr. Dunn was unmarried. The iting committee of the asylum were his personal nds, and he was beloved by patients and staff, to om his sympathy and advice were always open.

R JAMES GRANT, M.D. MCGILL, M.R.C.P. LOND.

EW men can have lived a fuller or more varied life n James Alexander Grant, who was born at Inver- s in 1831 and died at Ottawa on Feb. 8th last. In the xties," after suffering himself from surgical blood- soning, he was led to test the effect of vaccine lymph various skin diseases, thus foreshadowing the later ults of serum therapy. A medical graduate of McGill, F.R.C.S. Edin., and M.R.C.P. Lond., he presided at time over the College of Physicians and Surgeons in tario, and at another over the Royal Society of nada. His political career included the introduction the Legislature of the Pacific Railway Bill. As a logist he held a position of some eminence. Knighted the height of his public reputation, he lived for years in well-deserved enjoyment of the honour.

Medical News.

A WORLD CONGRESS OF PHYSICIANS AND SURGEONS. —Dr. F. F. Simpson, with introductions from some of the chief representatives of medicine and surgery in the United States, is in London to consult with our leading men in the profession as to the coördinating and standardising of all branches of medicine so as to form a World Congress of Physicians and Surgeons, composed of the various international congresses and associations already established. The creation of international associations to deal with specialties which are not already thus provided is also to be considered. A meeting will be held to-day (Friday, Feb. 13th), at 5.30, at the House of the Royal Society of Medicine, and it is hoped also to arrange for conferences in Paris, Brussels, and Rome at early dates.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At recent examinations for the Diploma in Public Health the following candidates were recommended for the diploma:—

Geoffrey Andrew Bird, St. Thomas's and Middlesex; Kathleen Lydia Cass, Univ. Coll.; Frederick Adderley Howard Clarke, St. Bart.'s and R.A.M. College; Sheldon Francis Dudley, St. Thomas's; Walter Egbert Fox, Guy's; Henry Cecil Jennings, St. Thomas's; Ralph De Veil King, Univ. Coll. and St. Mary's; Alexander Frank Knott, Guy's; Bessie Russell MacKenzie, Edinburgh and King's Coll.; Rees Phillips, Middlesex and Univ. Coll.; Carrie Sims, Birmingham and Univ. Coll.; Hector Smith, Univ. Coll.; John Stewart, Glasgow; John Reginald Arthur Digby Todhunter, St. Thomas's and Univ. Coll.; and Frederick Norman White, St. Bart.'s and Univ. Coll.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH. —A quarterly meeting of the College was held on Feb. 3rd, Sir Robert Philip, the President, in the chair, when M. Eleutherios Venizelos, Prime Minister of Greece, was elected an Honorary Fellow, and Mr. Leo Ferdinando Bianchi and Dr. William Hughes were elected Fellows. The following were admitted to the Membership of the College: Dr. D. H. D. Cran, Dr. P. C. Davie, Dr. H. C. Elder, Dr. D. Cook, and Dr. E. W. Frecker. Licences to practise were granted (in conjunction with the associated bodies) to 11 candidates who had fulfilled the conditions and passed the Final examination.—The President announced that the Supplementary Royal Charter, dated Dec. 3rd, 1919, had now been delivered, and empowered the College to admit women to the Membership and Fellowship of the College on the same conditions and with the same privileges as men.—Sir Robert Philip was appointed a Trustee of the College.

COMPLIMENTARY DINNER TO SIR BERTRAND DAWSON.—Dr. Addison, the Minister of Health, and Sir Robert Morant will be present at the complimentary dinner offered to Sir Bertrand Dawson on his elevation to the peerage by the Federation of Medical and Allied Societies. All communications should be made to the secretary, Dr. Howard Mummery, at the offices of the Federation, 5, Vere-street, Cavendish-square, W. 1.

COMPLIMENTARY DINNER TO SIR GEORGE MAKINS. —A complimentary dinner will be given to Sir George Makins on a date in May which remains to be fixed. Sir Cuthbert Wallace will be in the chair, and St. Thomas's men, as well as medical officers who were associated with Sir George Makins in the B.E.F., are asked to communicate with Mr. C. Max Page, 134, Harley-street, W. 1, if they desire to be present. Final arrangements can then be made, of which due notice will be given.

THE TUBERCULOSIS SOCIETY.—At a general meeting of the members of the Tuberculosis Society it was decided that the society should not affiliate with the Federation of Medical and Allied Societies. As far as medical societies are concerned, the Tuberculosis Society considers that a subcommittee of the British Medical Association could ascertain their views. On the ascertainment of the views of the public the Tuberculosis Society is silent.

H.R.H. Princess Mary will lay the foundation-stone of a nurses' home in the grounds of the Royal Hospital and Home for Incurables, Putney, on Wednesday, May 12th. The Princess has consented to receive purses, containing 5 guineas or upwards, towards the cost of the new building from ladies and young people who will have the honour of presenting their gifts at the foundation-stone laying ceremony. An album in which will be given the names and postal addresses of those presenting the purses will be prepared for Her Royal Highness. All wishing to give purses should write at once to the secretary of the Royal Hospital and Home for Incurables, Putney, at the City offices, Bond Court House, Walbrook, E.C. 4.

THE Preston and County of Lancaster Queen Victoria Royal Infirmary have received from Lord Ashton [illegible] gift of £5000.

AN Order has been issued under the Anthrax Prevention Act, 1919, prohibiting, on and after Feb. 9th, the importation into the United Kingdom of shaving brushes manufactured in or exported from the Empire of Japan.

THE President of the French Republic, M. Poincaré, late Rector of the University of Glasgow, has conferred the Cross of Officer of the Legion of Honour upon Dr. James H. Nicoll, consulting surgeon to the Western Infirmary and Rector's Assessor in the Glasgow University Court from 1914 to 1919. Dr. Nicoll has been granted the Royal permission to accept and wear the decoration.

THE Ministry of Health is now making grants in aid of the blind, and with a view to coördination of effort has secured the close coöperation of the National Institute for the Blind, of which Sir Arthur Pearson is President. A Joint Committee representing the Advisory Committee on the Welfare of the Blind which sits at the Ministry and the National Institute for the Blind has accordingly been set up, and a desire is expressed that ways of diminishing overlapping and of preventing waste of effort in the collection of voluntary contributions shall, among other things, be considered.

ROYAL INSTITUTION.—On Tuesday next, Feb. 17th, at 3 o'clock, Professor Ernest Wilson begins a course of two lectures at the Royal Institution on Magnetic Susceptibility. On Saturday, Feb. 21st, Professor Sir J. J. Thomson begins [illegible] course of six lectures on Positive Rays. The Friday evening discourse on Feb. 20th will be delivered by Dr. E. J. Russell on British Crop Production, and on Feb. 27th by Mr. W. B. Hardy on Problems of Lubrication.

MANCHESTER MEDICAL SOCIETY.—The Presidential address of Professor R. B. Wild, which was delivered on Feb. 4th, had the comprehensive title "Some Racial Problems, Social Evils, and Modern Crusades." The racial problems concerned the falling birth-rate and its accentuation by the war, and general eugenics, as well as the care of the feeble-minded, were briefly discussed under this heading. The effects of tuberculosis, cancer, gout, and venereal diseases upon the race, [illegible] opposed to their effects upon the individual, were considered, [illegible] well as the prevalence of certain drug addictions—alcohol, caffeine, and nicotine—whose causes and results were compared and reviewed in an interesting dissertation.

CENTRAL COUNCIL OF INFANT AND CHILD WELFARE WORK.—At a meeting held at the Mansion House, London, on Feb. 4th Sir Arthur Stanley announced that the sum of £10,000 had been received by the Central Council as the result of the Victory Ball. This sum, though a happy and auspicious beginning, was [illegible] mere drop in the ocean compared with what was needed. Twelve existing societies connected with the furtherance of infant welfare had agreed to combine, and the aim of the Central Council was to do nothing that would diminish the strength and individuality of its component societies, but to get the money necessary for their work, and intervene only to prevent waste and overlapping.

GRANT TO THE VILLAGE CENTRES COUNCIL.—Queen Alexandra has decided to bestow with certain limitations the interest which will accrue annually from the surplus of £3000 from the Queen Alexandra's Field Force Fund to the Village Centres Council for the benefit of the disabled ex-Service men at their first village centre at Enham, in Hampshire. This will enable the relief which her fund sent abroad during the war years to continue and to benefit the victims of that war and fit them for usefulness in days to come. The Council is at present giving 150 ex-Service men medical treatment combined with curative and vocational training. The Committee hope to accommodate eventually 500 men. The present centre owes its inception to voluntary generosity, which is now supplemented by a capitation grant received from the Ministry of Pensions for each patient, and it is hoped that when the numbers reach 225 these fees, together with the produce sold from gardens, farms, and workshops, will place Enham on a self-supporting basis, though capital will still have to be found for further extension and a cottage scheme. The Executive Committee is at present considering the best way of laying out the annual amount which they will receive from Queen Alexandra's Field Force Fund.—The town of Southampton is increasing its donation of £500 for the Southampton Hut at the Enham Village Centre to £1000, and the city of Winchester has also contributed the sum of £500 for a Winchester Hut. It is hoped that many other cities in the United Kingdom will follow the lead given by Southampton and Winchester. Full particulars regarding the work of the Village Centres Council can be obtained from the secretary at 51, Lincoln's Inn Fields, London, W.C. 2.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Feb. 19th.—Papers:—Prof. B. Moore and Mr. Webster: Studies of Photo-synthesis in Fresh-water Al Prof. W. M. Bayliss: The Properties of Colloidal Syst IV., Reversible Gelation in Living Protoplasm.—The F. J. Wyeth: The Development of the Auditory Appa in Sphenodon Punctatus (communicated by Prof. A. D

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Tuesday, Feb. 17th.

SPECIAL GENERAL MEETING OF FELLOWS: at 5 P.M.
To consider, and if approved to confirm, proposal by the Co to constitute a new Section—viz., a Section for dealing questions specially pertaining to Urology.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circula

MEETINGS OF SECTIONS.

Tuesday, Feb. 17th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secreta Philip Hamill, Douglas Cow): at 4.30 P.M.
Discussion:
On "The Value of Alcohol as a Therapeutic Agent," t opened by Dr. H. H. Dale, C.B.E., F.R.S.
The following will also take part:—Dr. A. P. Beddard, Langdon Brown, Sir William Hale White, Dr. R. Hutch Dr. O. Leyton, Dr. E. Mellanby, Professor R. B. Wild, Dr. W. H. Willcox.
Others wishing to speak should send their names to Douglas Cow, Great Shelford, near Cambridge.

MEDICINE.—Members of this Section are cordially invited to part in the above Discussion.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jo at 8.30 P.M.
A meeting will be held in the Pathological Labora St. Bartholomew's Hospital, E.C. 1.

Wednesday, Feb. 18th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Cha F. G. Crookshank): at 5 P.M.
Paper:
Dr. R. C. Buist: The Salernitan Verses and their En Versions.

Thursday, Feb. 19th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 5 P.
Cases (at 4.30 P.M.):
Dr. Graham Little: (1) Anæsthetic Leprosy; (2) Urticaria mentosa in Adult; (3) Morphœa with Acute Onset.
Dr. Gray: (1) Generalised Rodent Ulcer; (2) Extensive Vas Nævus; (3) Case for Diagnosis
Dr. Sibley: Leucodermia.

Friday, Feb. 20th.

OTOLOGY (Hon. Secretaries—H. Buckland Jones, Lionel Colle at 5 P.M.
Cases and Specimens will be shown by—
The President (Mr. Herbert Tilley), Mr. Lionel Colledge, Dundas Grant, Mr. Richard Lake, Dr. Dan McKenzie, Mr. O'Malley.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Caven square, W.
MONDAY, Feb. 16th.—9 P.M., Lettsomian Lecture: Dr. H Spencer: Tumours Complicating Pregnancy, Labour, the Puerperium. (Lecture II.)

CHELSEA CLINICAL SOCIETY, at the Club Room of St. Geo Hospital Medical School.
TUESDAY, Feb. 17th.—8.30 P.M., Cases and Specimens will be sh

LONDON DERMATOLOGICAL SOCIETY, St. John's Hosp 49, Leicester-square, W.C.
TUESDAY, Feb. 17th.—4.30 P.M., Pathological Specimens. C sent for Consultation. Clinical Cases will be shown

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chan street, Cavendish-square, W.
FRIDAY, Feb. 20th.—8.30 P.M., Discussion on Small Pox, op by Colonel W. G. King, C.I.E., I.M.S. (retd.). Paper:—Li Colonel N. H. Fairley, A.A.M.C., and Capt. H. R. R.A.M.C.: Causes of Death from Malaria in Palestin Study in Cellular Pathology.

LECTURES, ADDRESSES, DEMONSTRATIONS,

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Fields, W.C.
MONDAY, Feb. 16th, AND WEDNESDAY.—5 P.M., Hunte Lecture:—Prof. W. G. Spencer, O.B.E.: The Histo Relationship between Experiments on Animals and Development of Surgery. (Lectures II. and III.)
FRIDAY.—5 P.M., Arris and Gale Lectures:—Prof. G. E. Sm The Evolution of the Cerebellum. I., The Origin of Cerebellum.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the Unive and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced S tions will be given by Dr. W. L. Symes in the Physiolog Laboratory of the University, South Kensington, S.W.:—
TUESDAY, Feb. 17th.—5 P.M., Lecture IV.
A Course of Eight Lectures on the Reaction of the Blood Acidosis will be given by Dr. J. W. Trevan, at St. Bar lomew's Hospital, West Smithfield, E.C.:—
WEDNESDAY, Feb. 18th.—4.30 P.M., Lecture IV.

Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E. :—

Thursday, Feb. 19th.—4.30 P.M., Lecture VII.

NDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF ONDON), Mile End, E.

Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Monday, Feb. 16th.—9.15 A.M., Lecture VI.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)

Wednesday.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 A.M., Lecture VII., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

IG'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY LONDON).

Post-Graduate Course of Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, Feb. 20th.—9.15 P.M., Dr. A. Whitfield: The Early Stages of Syphilis, especially in its Cutaneous Manifestations.

TIONAL HOSPITAL FOR DISEASES OF THE HEART POST-RADUATE COURSE, Westmoreland-street, W.

Monday, Feb. 16th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Goodall: Arteriosclerosis.

Thursday.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

Saturday.—10.30 A.M., In-patients: Dr. Hamill.

YAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall f the Institute, 37, Russell-square, W.C.

pecial Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Feb. 19th.—5 P.M., Lecture VI.:—Dr. S. R. Gloyne: The Problem of Immunity in Tuberculosis.

RTH-EAST LONDON POST-GRADUATE COLLEGE, Prince f Wales's General Hospital, Tottenham, N.

Tuesday, Feb. 17th.—2 P.M., Demonstration:—Mr. J. H. Evans: Cases illustrating Diseases of the Breast. 4.30 P.M., Lantern Lecture:—Dr. J. Metcalfe: The X Ray Examination of Diseases of the Digestive Tract.

TIONAL HOSPITAL FOR THE PARALYSED AND EPI-EPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Feb. 16th.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Mr. Paton: Optic Atrophy.

Tuesday, Feb. 17th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

Wednesday, Feb. 18th.—2 P.M., Mr. Armour: Surgical Treatment of Cerebral Tumours. III. 3.30 P.M., Dr. Grainger Stewart: Disseminated Sclerosis. II.

Thursday, Feb. 19th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Farquhar Buzzard: Intracranial Tumours.

Friday, Feb. 20th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Collier.

Saturday, Feb. 21st.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

EST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Saturday, Feb. 14th.—12 noon, Dr. Souttar: Surgical Anatomy of the Abdomen.

Monday, Feb. 16th.—5 P.M., Mr. Macdonald: Tuberculous Disease of Urinary Tract.

Tuesday.—5 P.M., Dr. Burnford: Clinical Lecture, with cases.

Wednesday.—5 P.M., Dr. Beddard: Practical Medicine. (Lecture II.)

Thursday.—12 noon, Mr. Sinclair: Surgical Demonstration.

Friday.—5 P.M., Special Lecture:—Dr. A. C. Jordan: The Radiography of Chronic Intestinal Stasis.

OSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, Feb. 18th.—4.30 P.M., Dr. Hartley: Pneumothorax.

OYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Tuesday, Feb. 17th.—3 P.M., Prof. E. Wilson: Magnetic Susceptibility. (Lecture I.)

Friday.—9 P.M., Dr. E. J. Russell: British Crop Production.

Saturday.—3 P.M., Prof. Sir J. J. Thomson, O.M.: Positive Rays. (Lecture I.)

NIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, Feb. 16th.—3.30 P.M., Dr. Nutt: X Ray Examination of Thorax.

Tuesday.—4 P.M., Dr. Hay: Diseases of Iris and Ciliary Body.

Wednesday.—3.30 P.M., Dr. Wilkinson: Common Laryngeal Ailments.

Thursday.—3.30 P.M., Dr. Skinner: Seborrhœa, Alopecia, &c.

Friday.—4 P.M., Dr. Hay: Diseases of Lens: Glaucoma.

NIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

Wednesday, Feb. 18th.—4.15 P.M., Mr. B. Whitehouse: Gonorrhœa in the Female. (Lecture II.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Feb. 17th.—4.30 P.M., Lecture:—Dr. C. H. Melland: Polio-encephalitis and Lethargic Encephalitis.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, Feb. 19th.—4.30 P.M., Lecture:—Mr. Ollerenshaw: Common Injuries and their Treatment from an Orthopædic Point of View. (At Salford Royal Hospital.)

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

JAMES, F., M.D., D.P.H., has been appointed Medical Officer of Health for the Royal Borough of Kensington.

Royal Free Hospital: WILLIAMSON, G. S., M.B., Ch.B., Pathologist; CHODAK, H. H., M.D., M.R.C.P., Assistant Physician.

Certifying Surgeons under the Factory and Workshop Acts: HALLINAN, J. C., M.R.C.S., L.R.C.P. Lond. (Rotherham); CASSIDY, J. P., L.R.C.P. & S. Irel. (Lisnaskea); McLOUGHLIN, H., M.B., B.Ch. Irel. (Rostrevor); CHRISTIE, W. M., M.B., Ch.B. Edin. (Catrine); GUTTERIDGE, B. G., M.R.C.S., L.R.C.P. Lond. (Shardlow); HEISER, A. L., M.R.C.S., L.R.C.P. Lond. (Colnbrook); SHARP, E. W. L., M.R.C.S., L.R.C.P. Lond. (Burnham Market); WILSON, G. P., M.R.C.S., L.R.C.P. Lond. (Ketton).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Third H.S. £150.

Bedford County Hospital.—H.P. £150.

Birkenhead Borough Hospital.—Two H.S.'s. £200 and £170.

Birmingham, City Hospital, Little Bromwich.—Asst. M.O. £300.

British Guiana.—Asst. M.O. £400.

Cancer Hospital (Free), Fulham-road, S.W.—Asst. Anæsth. 25 g.

Carlisle, Cumberland Infirmary.—Res. M.O. £200.

Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.

Chorley Borough.—M.O.H. and School M.O. £700.

Croydon County Borough Mental Hospital, Upper Warlingham, Surrey.—Second Asst. M.O. £500.

Denbigh, North Wales Counties Mental Hospital.—Locum Tenens. £7 7s. p.w.

Derby, Derbyshire County Council Tuberculosis Committee.—Asst. Res. M.O. £300.

Derby, Derbyshire Royal Infirmary.—Ophth. H.S. £200.

Devonport, Royal Albert Hospital.—H.S. £200.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dudley County Borough.—Asst. Sch. M.O. and M.O.H. £500.

Dumfriesshire Education Authority.—Female Med. Asst. £400.

East Ham County Borough.—Tuberc. O. and Res. M.O. at "Harts" Sanatorium, Woodford. £500.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s.

Essex, Brentwood Mental Hospital.—Fourth Asst. M.O. £510.

Falkland Islands.—Dent. S. £500.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

Govan District Asylum, Hawkhead, Cardonald, Glasgow.—Jun. Asst. M.O. £300.

Great Yarmouth General Hospital.—H.S. £200.

Greenwich and Deptford L.C.C. School Clinic Committee.—Refractionist, P., Aural S., and Anæsth. £70 each. Also Dentist. £50.

Hampshire County Council.—Asst. M.O.H. £540.

Hospital for Sick Children, Great Ormond-street, London, W.C.—P. to Out-patients.

Hull Royal Infirmary.—Asst. H.S. £250.

Jerusalem, British Ophthalmic Hospital.—Asst. Res. S.

Lancashire County Council, School Medical and Child Welfare Department.—Dentist. £600.

Lancaster County Asylum.—Asst. M.O. £300.

Leeds General Infirmary.—M.O.'s for Radiol. Dept. and Electro- and Radio-Therap. Dept. £100 each.

Leeds Public Dispensary.—Hon. Radiologist.

Leicester City Isolation Hospital and Sanatorium, Groby-road.—Second Res. M.O. £300.

Lincoln County Hospital.—Jun. H.S. £150.

Lindsey County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £550.

Liverpool Infirmary for Children.—H.S. and H.P. £90.

Liverpool, Royal Southern Hospital.—Hon. Ophthal. S. Also Hon. Asst. P.

London Hospital Medical College, Mile End, E.—Lecturer on Neuroses and Psycho-Neuroses.

Maidstone, West Kent General Hospital.—H.P. £200. Hon. Orthop. S. and M.O.

Manchester, Crumpsall Institution and Infirmary, Crescent-road.—Asst. M.O. £300.

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res. M.O. £250.

Manchester Royal Infirmary.—H.P.'s.

Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.

Merthyr Tydfil County Borough.—Female M.O. £500.

Miller General Hospital for South-East London, Greenwich, S.E.—H.P. and Registrar. £100.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth. £120.

Northumberland County Council.—County M.O.H. and Sch. M.O. £800.

Norwich City.—Asst. M.O.H. £350.

Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept.

Notts County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £500.

Queen Mary's Hospital for the East-End, Stratford, E.—Hon. Asst. P.'s. Res. M.O.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Res. M.O. £200.

Reading, Royal Berkshire Hospital.—Second H.S. £200.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Clinical Asst.

Royal Chest Hospital, City-road, E.C.—Res. M.O. and H.P. £200 and £120.

Royal College of Surgeons in Ireland.—Lectureship. £150.

Russian Red Cross in Great Britain, 35, Albemarle-street, W.—M.O.

St. Bartholomew's Hospital and College.—Sen. Demonstr. of Physiology. £400.

St. Thomas's Hospital, S.E.—Fellowship. £600.

Sheffield, East End Branch of the Children's Hospital.—H.S. £150.

Sheffield Royal Hospital.—Asst. Cas. O. £120.

Shirlett, near Much Wenlock, King Edward VII. Memorial Sanatorium.—Res. Med. Supt. £450.

South London Hospital for Women, South Side, Clapham, S.W.—Female Dental S. £25. Asst. Pathologist.

Southport General Infirmary.—Sen. H.S. £250.

Stoke-on-Trent.—Female M.O. £500.

Sunderland County Borough.—Asst. M.O.H. and Maternity and Child Welfare M.O. £500.

Swindon Borough.—Asst. M.O.H. £600.

Wakefield, West Riding County Council.—Sch. Med. Inspector. £500.

Wigan County Borough Education Committee.—Part-time School Dentist. £150.

Winchester, Royal Hampshire County Hospital.—H.P. £250.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Broughton Astley, Long Melford, Maidenhead, Shelf, Shrewsbury, South Molton, and at Uphall.

Births, Marriages, and Deaths.

BIRTHS.

ELLIOTT.—On Feb. 6th, at the Richmond Hill Nursing Home, Aberdeen, the wife of Walter Armstrong Elliott, M.B., B.S., of a daughter.

GILLIATT.—On Feb. 5th, 1920, at 58A, Wimpole-street, London, W., the wife of W. Gilliatt, F.R.C.S., of a daughter.

KENNEDY.—On Feb. 4th, at Boughton, near Faversham, Kent, the wife of Arthur Kennedy, M.A., M.B., Ch.B., of a daughter.

O'NEILL.—On Jan. 8th, at Meerut, the wife of Major J. S. O'Neill, M.C., I.M.S., of a daughter.

MARRIAGES.

HUMPHREYS—HUDSON.—On Feb. 5th, at Knowle Parish Church, Humphrey Humphreys, M.C., M.B., to Constance Hudson, eldest daughter of Mrs. R. B. Cooper, of Knowle.

MACINNES—WOOD.—On Feb. 6th, at St. John's Wood Presbyterian Church, London, John MacInnes, M.B., to Mabel Maude, daughter of Richard Wood, Esq., New South Wales.

ROBINSON—MACDONALD.—On Feb. 3rd, at the Congregational Church, Barnsley, Captain Christian Cathcart Robinson, R.A.M.C. (T.F.), to Jessie Leonora, second daughter of Mr. Allan Macdonald, Oaklands, Huddersfield-road, Barnsley.

DEATHS.

CLERY.—On Feb. 10th, at St. John's Park, Blackheath, S.E., Surgeon-General J. A. Clery, C.B. (retired), late A.M.S.

HUMPHRY.—On Feb. 5th, at Lersfield, Cambridge, from illness contracted while on service at the 1st Eastern Hospital as Lieutenant-Colonel, R.A.M.C. T., Laurence Humphry, M.D., F.R.C.P., Senior Physician to Addenbrooke's Hospital, aged 63.

LAKE.—On Feb. 8th, at Benton, Teignmouth, William Charles Lake, M.D., aged 94.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B., ET FILS, Paris.

Guide Pratique pour l'Examen Médical des Aviateurs et des Candidats à l'Aviation. Par le Dr. Maublanc et le Dr. Ratié, Médecins du centre d'Aviation de Chartres. Préface par le Dr. André Broca. 3 fr.

L'Art de Prescrire. Par le Prof. Gilbert, Professeur de Clinique Médicale à l'Hôtel Dieu. 12 fr.

LEWIS, H. K., London.

Military Psychiatry in Peace and War. By C. S. Read, M.D. Pp. 168. 10*s*. 6*d*.

The Diagnostics and Treatment of Tropical Diseases. By E. R. Stitt, M.D. 3rd ed. Pp. 534. 14*s*.

Handbook of Sanitary Law. By B. B. Ham, M.D., D.P.H. 8th ed. Edited by H. R. Kenwood, M.B., D.P.H. Pp. 216. 5*s*.

LIPPINCOTT (J. B.) COMPANY, London.

Oscar Montague-Paranoiac. By G. L. Walton. Pp. 304. 6*s*.

LIVINGSTONE, E. AND S., Edinburgh.

Wheeler's Handbook of Medicine. By W. R. Jack, M.D. 6th ed. Pp. 561. 12*s*.

LONGMANS, GREEN, AND CO., London.

A Manual of Practical Anatomy. By Prof. T. Walmsley. With Preface by Prof. T. H. Bryce. Part I.: Upper and Lower Limbs. Pp. 176. 9*s*.

MACMILLAN AND CO., London.

Essays on the Surgery of the Temporal Bone. By Sir Charl
Ballance, K.C.M.G., F.R.C.S. With the assistance of
Green, M.D., F.R.C.S. Two vols. Pp. 612. £5 5*s*.

A Class-Book of Organic Chemistry. By J. B. Cohen,
Vol. II. Pp. 156. 4*s*. 6*d*.

MASSON ET CIE., Paris.

La Tension Artérielle en Clinique: Sa Mesure, sa Valeur Sé
logique. Par le Dr. L. Gallavardin, Médecin des Hôpitau
Lyon. 2nd ed. Pp. 720. 30 fr. net.

METHUEN AND CO., London.

Chemistry for Public Health Students. By E. G. Jones,
Pp. 244. 6*s*.

MURRAY, JOHN, London.

Science and Life. By F. Soddy, F.R.S. Pp. 229. 10*s*. 6*d*.

Springtime and Other Essays. By Sir Francis Darwin, F
Pp. 242. 7*s*. 6*d*.

OLLIER-HENRY, Paris.

Contribution à l'Etude du Traitement des Plaies de Guerre
la Méthode Mencière. Par Dr. F. Brabander. Pp. 142.

SWARTHMORE PRESS, 72, Oxford-street, London.

The Famine in Europe: The Facts and Suggested Remedies
Lord Parmoor, Sir George Paish, Prof. Starling, and Ot
Being Report of Conference by Fight the Famine Counc
Caxton Hall in November, 1919. Pp. 126. 4*s*. 6*d*.

THE LORD BALTIMORE PRESS, Baltimore.

Proceedings of the American Medico-Psychological Associa
June, 1918. Pp. 397.

UNIVERSITY PRESS, Cambridge. HENRY CLAY, London.

Food Poisoning and Food Infections. By W. G. Savage,
Pp. 247. 15*s*.

VAILLANT-CARMANNE, H., Liege.

La Fatigue de l'Appareil Visuel chez les Ouvriers Mineurs.
le Dr. M. Stassen. Pp. 234.

WILLIAMS AND NORGATE, London.

Engines of the Human Body. By Prof. A. Keith, F.R.S. Pp
12*s*. 6*d*.

Communications, Letters, &c., to the Editor ha been received from—

B.—Mr. W. B. Brierley, Harpenden; Dr. H. S. Banks, Motherwell; Dr. W. L. Brown, Lond.; Dr. E. Bramwell, Edinburgh; Mr. H. W. Bayly, Lond.; Mr. H. N. Barnett, Bath; Dr. J. P. Bibby, Leeds; Mr. C. Berkeley, Lond.; Dr. G. Blacker, Lond.; Dr. M. Bourcart, Geneva; Messrs. G. Bell and Sons, Lond.; Dr. H. Brown, Lond.; Dr. A. E. Boycott, Lond.; Dr. J. L. Birley, Lond.; Sir J. R. Bradford, Lond.; Mr. J. Breuer, Leysin; Sir N. Burnett, Lond.; Dr. H. Brown, Chislehurst.

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I.—*International Psychic Gazette*, Lond., Editor of.

J.—Dr. G. Jones, Lond.; *Journal of the American Medical Association.*

K.—Dr. R. Knox, Lond.; Lieut.-Col. J. Kynaston, R.A.M.C.; King's College Hospital Medical School, Lond., Sec. of.

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Menzies, Cheddleton; Mr
Murray, Lond.; Dr. M.
Moloney, Dungarvan;
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Walker, Bromley; Dr. J.
Wynne, Norwich.

Communications relating to editorial business should addressed exclusively to the Editor of THE LANC 423, Strand, W.C.

tes, Short Comments, and Answers to Correspondents.

MAN'S ORIGIN.

IE last of a series of lectures[1] on the origin and distribu- of man upon the earth was given by Professor G. ot Smith at the Royal Institution on Feb. 10th. The ortance of gold has loomed large to the public attention ecent years, yet its place in primitive society, thousands ears before it became the basis of currency, was certainly less influential.

The Search for Gold : the First Explorers.

ie story of an ethnological discovery of revolutionary ort, connecting the spread of the earliest civilisation with 's search after gold, was told with graphic interest—an rest which was heightened by the fact that the urer himself had played so large a part in unveiling records of the distant past. It was in 1908 that fessor Smith, researching amongst the mummified ains of early civilisations in Egypt, discovered traces of lien population who had lived in that country shortly re the building of the Pyramids. A year later, when vas pursuing the investigation of this race, he found these people had also inhabited parts of France and at Britain, and that their residence was associated with erection of rough stone monuments (megaliths), of which nehenge is a type. A series of slides showed examples of e dolmens from Europe and also from India. It was in , when he was examining for the Natural Science Tripos Cambridge, that Professor Smith made a further nishing discovery. A skull had been put out for poses of examination, and he was interested to find this was [illegible] perfect example of the race into whose toms and travel he had been inquiring. To his amaze- it this skull proved to have come from the Chatham nds in the Antipodes, and to be only one of a collection skulls all bearing the same characteristics. This ouraged him to look still further afield for signs of this ple. In 1914 he was in Australia, and there found a mmy brought from the Torres Strait which was balmed in a peculiar way. The method was so charac- stic of that employed by this special race in Egypt that it ght be taken as conclusive evidence of the spread of their ticular culture. Moreover, it is found in all parts the world associated with the megalithic monuments. ny other customs and beliefs were found to be character- of these peoples, and assisted in locating with certainty se parts of the earth which they had inhabited. Amongst customs cited were those of piercing the ears for the port of special ornaments, tatooing, and the use of the stika, and the fairly prevalent custom amongst certain es of "couvade."

The Coincident Distribution of Gold.

n 1915 Mr. W. J. Perry, having received from Professor ith an account of his researches, drew the latter's atten- to the remarkable fact that wherever this early race of lorers had left the traces of their culture, there might be found evidences of a natural deposit of gold. Certainly re were some corners of the map where gold deposits had n marked, but no megalithic monuments reported. In ne of these an investigation revealed unmistakable lence, of the residence of this people—monuments and the characteristic terraced cultivation of the river banks. other places, [illegible] in the goldfields of the Transvaal and in stralia where gold was abundant, the marks of the lorers were wanting. Numerous maps were shown ving the remarkable close coincidence between the gold osits and the megalithic remains. Some of these maps e constructed from observations made by independent ervers before Mr. Perry had advanced his theory relating two sets of observations. Some idea of how the explorers velled was obtained from drawings of boats found on nze relics in Sweden and in the sculpture of the Egyptian galithic days. This type of ship was also found by nley on Lake Victoria Nyanza.

'he earliest historical records (the Vedas) refer to man as ng in territories which have also been located as the sites goldfields. Mithras worship is also found to follow the ne geographical plan. A modern map shows in its outlines same relation of occupation to mineral deposit. Thus Russian boundary is drawn to include the valuable nes to the north of Persia, while the Franco-Prussian r and the war just concluded illustrate further the dency of the dominant race to include minerals within limits of their territory.

The Paths of Discovery.

The connexion between gold and early civilisation, as already shown in Europe, Asia, and Australasia, was also demonstrated in the American continent. An outline was given of the direction in which these explorations after gold had spread. About 2500 B.C. the valleys between Turkestan and Persia had been exploited. Jade was found in the river-beds, [illegible] well [illegible] gold and pearls. Though the explorers attached no particular value to jade, the local inhabitants endowed it with the same magical properties as the gold and pearls. Influences of Babylonian culture were again evidenced in the banks of these streams. The early discoverers would have pressed on to N. China and there separated into two parties, one passing on to the valley of the Yenisei in Siberia to found there [illegible] colony of marauders that had proved a storm centre of the civilised world for 20 centuries. It was the pearl-beds that had lured the adventurers to the American side of the Pacific. Pearls were found on the islands in their track and the site of Copan, in Honduras, mentioned by Professor Smith on account of its precise evidence of old-world culture, was the one spot in that part of America where gold, silver, and copper were all to be found. The pioneers who went in search of gold had sometimes suffered from the reputation their wealth gave to them. They were attached by the ancient military aristocracies and enslaved, and so the evidences of their existence might sometimes be obscured.

How Gold Acquired its Charm.

An important and absorbing part of the story related how gold came to acquire so great an influence in the world. The earliest evidence of its use comes from Egypt and dates from about 4000 B.C. The ancient Egyptian symbol for gold is a conventional girdle of cowries. These shells still form part of the dress of certain tribes, and in the more recent Egyptian history were worn by princesses with gold and felspar to complete the girdle. The cowry shell was buried with the Egyptian dead. It was endowed in their belief with the virtue of vitality. It increased fertility, preserved youth, and was given to those who died in the belief that death was [illegible] sign of diminished rather than absent vitality, and that with this additional source of vigour the dead might carry on some sort of life beyond the grave. After a time the demand for cowries must have exceeded the supply for models were made in imitation of the real shells from the clay of the river bed. Then gold, also found in the river-beds, was used to make model cowries. The beauty and lustre must have confirmed their beliefs, till presently the substance rather than the form acquired a magical significance.

MEDICAL AFFAIRS IN JAIPUR STATE, 1918.

JAIPUR is an independent Rajput State, the capital of which, having the same name, is an important commercial centre; the population of the State in 1911 was 2,636,647, and of the capital, 137,098; the city lies about 150 miles to the south-west of Delhi. The climate is hot, but not unhealthy. The birth-rate in 1918 in Jaipur city was 20·2 per 1000, and the death-rate 72·97 per 1000; about one-third of this mortality occurred among children under 5 years of age.

The chief causes of death were fevers (5898), plague (1191), and respiratory diseases (820). The plague epidemic had completely subsided in the early part of June, but was severe while it lasted; there were 1199 attacks and 1196 deaths in Jaipur city and the plague camp hospital; and 18,150 attacks and 17,479 deaths in 331 infected towns and villages throughout the State. Influenza was also epidemic in a very severe form in October, and caused 4393 deaths; on Oct. 24th there were 265 deaths from this cause alone in Jaipur city. At the Mayo Hospital a total number of 29,240 patients were treated, of whom 2320 were in-patients. As many as 1032 major operations were performed, 963 of these being undertaken by Rai Bahadur Dr. Daljang Singh Khanka, including 471 for cataract. The number of prisoners in the central and district jails averaged 772, with an admission-rate to hospital of 182·6 and a death-rate of 49·21 per 1000; the admission-ratio is considerably lower than that for jails throughout India as a whole (706 per 1000, average 1906–15), but the death ratio is much higher (20·46 for India, 1906–15).

An interesting and valuable series of tables in the appendix give details of meteorological observations taken at the Jaipur Observatory. The mean temperature in 1918 was 77·4° F. (the same as the average for 50 years); in May the mean was 94·4° and in June 91·4°; the solar radiation thermometer registered 178° on May 15th, 174° on June 23rd, and 175° on July 5th; the highest shade temperature registered was 114° on May 15th. The total rainfall throughout the year was only 8·82 inches, compared with 51·86 inches in 1917, and a 50 years' average of 23·69 inches.

Jaipur is a flourishing and healthy State, hot in the summer and cold in the winter, but not nearly so extreme in either direction [illegible] Western Rajputana or the Punjab. The city is well built and its sanitation well cared for. The report under consideration, which is submitted by Dr. D. S. Khanka, assistant surgeon, is comprehensive and well arranged, and bears testimony to the enlightened administration of this independent Rajput State.

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[1] A report of Lectures I. and II. appeared in THE LANCET of ɔ. 7th, p. 357.

THE POSITION OF POTASH SUPPLIES.

THE future of potash supplies is of the utmost importance to the agricultural interests of this country and therefore to the community at large, and it is disturbing to find that our own resources, so far as they have been exploited, prove to be short of requirements. Perhaps a useful and valuable lesson might be learned from what Germany has done in this matter. That country found long ago in the famous district of Stassfurth that there were great deposits of common salt left probably by the evaporation over an infinite period of time of [illegible] great sea incursion. The same thing, likely enough, happened in these islands, for we possess huge deposits of salt in Cheshire (Droitwich and Nantwich in particular) and in Stafford. In Germany it was argued that as potash was also a constituent of sea-water its salts probably would be found beneath the common salt layer. Continued boring proved that to be the case, and [illegible] centre of the world's supply was established. What this supply means may be judged from the following paragraph taken from the *Economic Review* (Jan. 21st) :—

Prospects of the German Potash Industry.

A report on the conditions of the potash industry during the war and its prospects, issued by Gebr. Dammann in Hanover, states that in 1913 2,483,000 d.ctr. of pure potash, to the value of over Mk. 100 mill., was exported to the United States out of a total sale of 11,100,000 d.ctr. This outlet was completely closed, but Germany's economic life was so strangled by the war that any danger of over-production disappeared. No new shafts were sunk during the war.

The geographical position of the Alsace deposit lays down definite limits for their future working. Germany's needs for agriculture and industry are undiminished, and she must also supply the enormous areas in the East; Northern Europe will scarcely enter into competition; the sales overseas, especially to the United States, will also fall principally to the German potash industry. Leading manufacturers are of opinion that under normal labour conditions the production can without difficulty be increased from the 11 mill. d.ctr. in 1913 to 20 mill. d.ctr., and the exploitation of the almost unlimited opportunities of sales abroad can contribute to the raising of the German exchange and the restoration of her economic life to a sound basis.

The average selling value of 1 d.ctr. of pure potash has increased from Mk.17.50 in 1913 to nearly Mk.29 in 1918—i.e., by about 70 per cent. The figures for 1919 are not yet to hand, but since the average home prices have increased during 1919 by a further 175 per cent., there will be a considerable increase in turnover to record in spite of the reduction in quantity, the sales probably reaching about Mk.500 mill.

During the autumn of 1919 the work of concentration has been going on. Out of 198 potash works more than 150 are now united into syndicates, and out of 40 new mines being opened 30 belong to similar concerns.

The fall of the exchange and the appearance of foreign buyers in the German share market has made itself increasingly felt in the potash industry.

As regards the future, the potash industry is especially adapted to aid in the reconstruction of Germany's economic life. It has no need to import raw material. The German deposits are so rich that without stinting home agriculture and industry they can supply all the civilised countries in the world. (*Hamb. Corr.*, Jan.6.e.)

Potash is clearly a magnificent asset to Germany, and the circumstances of the birth of the industry may well be worth enquiring into in regard to the great salt deposits in this country. Have our engineers, geologists, and chemists gone into this matter? The German view seems to have been that where there was sodium there must be potassium. It proved right. It seems to us we should start a similar quest in the depths of our great saline deposits. With any success both medicine and agriculture would profit.

A GLOUCESTERSHIRE CENTENARIAN.

Mr. Joseph Read, an inmate of the Thornbury Workhouse Infirmary, celebrated the 100th anniversary of his birthday on Jan. 28th. He was born at Winford, Somerset.

THE SOCIAL SERVICE LIBRARY.

Messrs. Bell will inaugurate next week the new "Social Service Library," which they are publishing in conjunction with the "Ratan Tata Foundation," under the editorship of of Mr. C. R. Attlee. The first volume deals with "The Social Worker," and is designed to some extent to serve as a general introduction to the series. Succeeding volumes will deal with "The Boy," "The Mother and the Infant," "The Girl," and "The Worker and the State." All of these are in active preparation and will, it is hoped, be published at short intervals.

CHILDREN AND CINEMAS.

THE question of injury said to be caused to children sitting too near the screen at picture theatres has been engaging the attention of the Eastbourne corporation, which invoked the assistance of Mr. N. Bishop Harman. In a report presented in conjunction with the medical officer of health of the borough, Dr. W. G. Willoughby, Mr. Harman says the optimum position is [illegible] nearly [illegible] possible in a line with the centre of the screen, and as far away from the screen as thrice its full height. In this position, and at such a distance, the picture appe more natural than in any other. But in nea all the cinemas in Eastbourne Mr. Harman discove the front seats were much too near the screen, the dista being equal to about once the height of the screen; as children were often relegated to the front rows pictures had an injurious effect on their eyesight. corporation have decided to include [illegible] clause on the li suggested by Mr. Harman on the issue of any new licenc

MEDICAL PENSIONS BOARDS.

To the Editor of THE LANCET.

SIR,—"Ex-R.A.M.C." in your issue of Feb. 7th pertine inquires how practitioners with large panels can find t to officiate on so many medical pensions boards. inquiry might with advantage be extended as to the met of appointment and qualifications of the hordes of med officials who are engaged in the Pensions Ministry f Whitehall downwards and the necessity for their existe Many of the pensioners have been out of the army for tw three years, or even more, and it is high time that perman pensions should be awarded them instead of re-board them over and over again. Further, the assessment sho be made in doubtful cases by those who have actually trea these men for weeks, or perhaps months, and who theref can best estimate their disability. The waste of pu money involved in maintaining the medical personnel in various regional areas (many doing clerical work t could be carried out [illegible] efficiently and more economic by clerks), with the accompanying galaxy of clerks typists, is appalling, and it would be interesting to know proportion of administrative charges to the amount actu reaching the pensioners' pockets or expended on t treatment.

I venture to think that such [illegible] return would effectu check the efforts now being made to saddle the coun with an enormous State Medical Service.

I am, Sir, yours faithfully,
Feb. 8th, 1920. PENSIONE

To the Editor of THE LANCET.

SIR,—I quite agree with "Ex-R.A.M.C.," who writes your issue of Feb. 7th that it is unfair that those of us have lost our practices through joining up should hav compete with men who have not served in the war in capacity. Some of us are on short time and employed f very few sessions weekly to make room for these men. T is contrary to the many definite promises made by Ministry of Pensions that preference would always be gi to those who had served at home or abroad.

I am, Sir, yours faithfully,
Feb. 8th, 1920. ANOTHER EX-R.A.M.

LIQUID PARAFFIN AS AN INTESTINAL LUBRICA

To the Editor of THE LANCET.

SIR,—It would be of interest to know whether any results have been observed in relation to the regular us paraffin as an intestinal lubricant. If paraffin oil be ta at or near [illegible] meal-time one would expect that, the food be thus intimately mixed with an inert mineral oil, there mi thus be interposed an obstacle to efficient digestion, u mately leading to varying degrees of malnutrition intestinal putrefaction, comparable with that which res from pancreatic insufficiency. As a corollary it would b the first importance that liquid paraffin should only taken late at night.—I am, Sir, yours faithfully,

Linden-gardens, W., Jan. 24th, 1920. PAUL C. GIBSO

⁂ The admixture cf a non-saponifiable oil with foo calculated to act [illegible] a barrier against the action of diges (hydrolysing) fluids. Even saponifiable fats do this, as i greasy meal. While petroleum lubricates the bowel it gi indigestion in some subjects.—ED. L.

METRIC DISPENSING.

To the Editor of THE LANCET.

SIR,—In reply to "W.," since the war many of us have into the habit of excluding Germany from our considerat in most matters. German regulations do not commit ot decimal-using countries to the same. The comma forms part of the decimal system proper, be it money, weights measures, and its use in connexion with such only tend complicate matters. The proper point is a full-stop rever —i.e., upside down, so as to appear at the upper part of figures. There is no necessity to denominate the fractio any amount which is already denominated by its relation the integer, thus 7 g 50 can mean nothing more nor l than 7 g 50 cg. The mode of expressing metric measure advocate renders mistakes practically impossible.

I am, Sir, yours faithfully,
Coulson-street, S.W., Feb. 4th, 1920. W. W. HARDWICK

Lettsomian Lectures

ON

TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

Delivered before the Medical Society of London on Feb. 2nd and 16th, and March 1st, 1920,

BY **HERBERT R. SPENCER**, M.D., B.S. LOND., F.R.C.P. LOND.,
OBSTETRIC PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL.

LECTURE I.—(*Abridged*).

FIBROID TUMOUR COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

GENTLEMEN,—A record of my experience, extending over 32 years, of tumours complicating pregnancy, labour, and the puerperium may not be without interest. I have limited the subject to fibroid tumour of the uterus, ovarian tumour, and cancer of the uterus; of the last two I have given the whole of my cases; of fibroid tumour, all the fatal cases and all the abdominal sections.

CASE 1.—A primipara, aged 35, seen in February, 1888. Married eight months and six months pregnant. Had a contracted pelvis, conjugata vera $3\frac{1}{16}$ in. Several uterine fibroids present: one on the left side of the body as big as a large watch, and another as big as a hen's egg on the left side of the lower segment, movable on a thick pedicle, and coming down as low as the vaginal fornix. I advised induction of labour at the seventh month. This was attempted by means of bougies, laminaria and sponge tents, and Barnes's bags; but, owing to the rigidity and small size of the cervix, without any effect. Finally, the cervix was dilated under chloroform with Barnes's bags and the child turned; craniotomy had to be performed on the after-coming head. The labour was a very difficult one, the patient being under chloroform for three hours. After delivery the uterus was found to have a large irregular mass of fibroids on the right side running nearly the whole length of the organ and causing it to reach, when involution was complete, within ½ in. of the umbilicus. The puerperium was perfectly normal.

I advised her if she became pregnant again to have a Cæsarean section. She did not return, but I was informed that she had several abortions procured in subsequent pregnancies.

SMALL TUMOURS GIVE RISE TO LITTLE TROUBLE.

Every obstetric physician in his private practice meets with many cases of small sessile subperitoneal fibroids of the size of a walnut to a lemon, as he attends an unusual number of elderly primiparæ in whom they are very common. In primiparæ of 35 and upwards I usually find one or more fibroids. These small tumours ordinarily cause no trouble of any kind. I append brief notes of the last case attended, which is typical of many.

CASE 2.—H., aged 38, married five years (children 0, abortion 0), 6 ft. 1 in. in height, in perfect health. A fibroid as big as a thick watch was found on the left side of the lower segment, and several small fibroids of the size of marbles and walnuts at the top of the fundus on each side. Labour at term, Oct. 11th, 1919, lasted 8½ hours; pains normal; delivery natural; no post-partum hæmorrhage. Child strong, 9¼ lb. Puerperium afebrile. The patient has not been informed of the existence of the tumours.

INNOCUOUS LARGE TUMOURS.

Even when large tumours are present it is remarkable how often patients pass through pregnancy and labour without serious trouble, as the following examples, selected from eight similar cases, show.

CASE 6.—T., aged 42, married eight years, never previously pregnant. Seen on April 26th, 1905. Pain in the right side of the abdomen of two months' duration. Nearly five months pregnant. Menstruation had always been regular, lasting three days, and usually preceded by pain.

The uterus was much larger than it should be, owing to a fibroid about as big as a fœtal head and a larger one as big as a coconut in the right cornu. (See Fig. 1.)

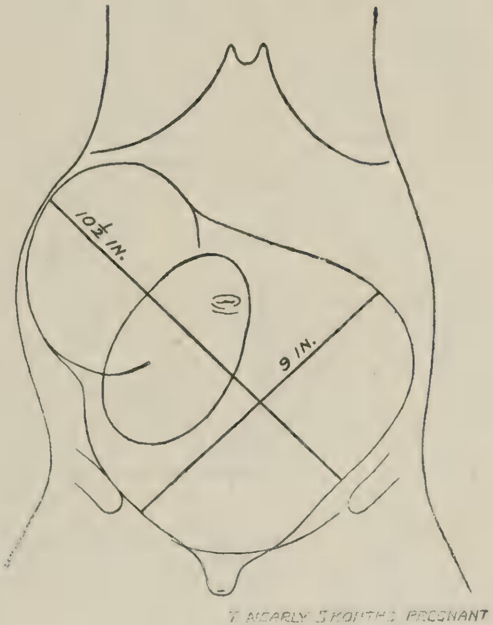
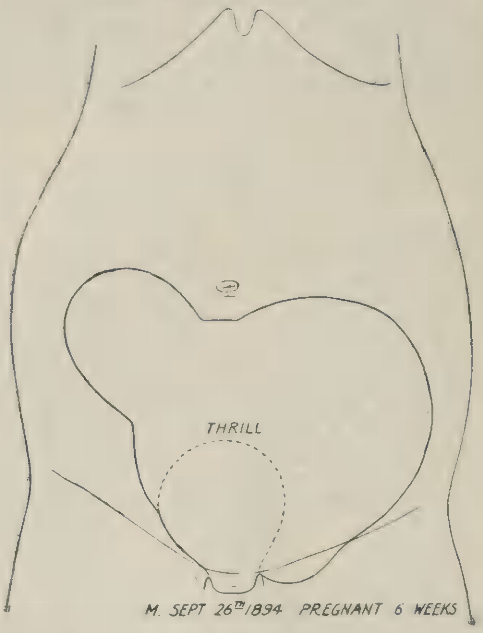


FIG. 1.—Case 6, showing two large fibroids.

A girl was delivered alive (a breech presentation) by Dr. Pearce, of Ripley, on Oct. 2nd, 1905. The mother made an excellent recovery. The uterus contained such a large mass of fibroids that on the fourteenth day of the puerperium it measured 10½ in. transversely, and reached up for 1½ in. above the umbilicus. Fourteen years later, on Nov. 18th, 1919, mother and child were both very well. No pregnancy since. Menstruation regular till 1911, when she was 50 years of age. The uterus was then small and atrophied, freely movable, and, except a slight irregularity of its surface, no sign of the fibroids could be found.

CASE 7.—On Sept. 26th, 1894, M., a nullipara, aged 37, was sent to me by Dr. Lennox Wainwright, of Folkestone. Married twice, the first time at the age of 20; but although married many years to her first husband, no coitus had occurred. Her second marriage took place July 1st, 1894. A few days afterwards she had a period, but none since. In the last three days she had been sick, and for three weeks she had had frequency of micturition. At the age of 14 she had an attack of peritonitis, which was repeated in 1886 and 1892, and since then had had several threatenings, and a well-marked attack three weeks ago. Menstruation began at the age of 11, and was regular except at the age of 19, when it stopped for 13 months; it was always very painful.

On examination the abdomen was tender and distended by a tumour, which reached up to the umbilicus on the left side and rather higher on the right, where there was a marked movable projection as big as a fist. The tumour felt like a myoma and near the middle of it there was a marked thrill. The uterus was retroverted, apparently enlarged, and seemed to pass into a hard mass above and around the cervix. To the left of the cervix projected a solid mass connected with the uterus, which came down to the level of the edge of the cervix. The diagnosis was made of pregnancy of 2 to 2½ months complicated with multiple fibroids. With rest the patient progressed fairly well, but on Oct. 28th, 1894, I was called to Folkestone and found her extremely ill, vomiting frequently, and obstinately constipated. A large enema of soap and water was successfully administered and the patient recovered completely. At this time the fundus had then risen out of the pelvis, but the fibroid on the left side still occupied the brim. At the beginning of April, 1895, the patient came to London with a view to a Cæsarean section. The head was above the brim and the lower end of the large fibroid just entered the pelvic brim on the left side, otherwise the pelvis was free and of full dimensions. The urine contained much albumin, and on consultation with Sir John Williams it was decided to induce labour on this account. This was done with bougies. During the labour the fibroid on the left side retracted above the brim and a well-developed girl of about 8½ months' development was born alive, after a normal labour, on April 7th, 1895.



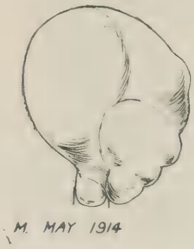


FIG. 2.—Case 7. The larger figure shows the size of the tumours at the sixth week of pregnancy; the smaller figure shows the size of the uterus 20 years later.

On May 7th, 1914, I saw the mother, aged 57, in good health. Menstruation stopped at the age of 47. The uterus was of the size of a fist, hard, and of the shape shown in the diagram. (See Fig. 2.)

CASE 8.—T., aged 26, consulted me in 1893 for dysmenorrhœa of three years' duration. The pain occurred a week before and during the whole of the period, which used to last eight days and lately six days. The uterus was small, the body a little irregular on the right side owing to the presence of a small fibroid. There was a body twice the size of an ovary on the left side; this was evidently the large fibroid found later. The right side of the lower segment also felt hard, as if from the presence of a small fibroid.

After she had been married 3½ years she was sent to me by Dr. F. W. Lyle, of Ealing, on June 12th, 1899. Although only three months pregnant (for the first time), the uterus reached up to a height of 6½ in. above the pubes, owing to the presence of three fibroid tumours the largest of which was nearly as big as a child's head the smallest encroaching upon the brim on the righ side. She was delivered by Dr. Lyle of a living chil on Jan. 12th, 1900, 297 days after the last day of the las period, and recovered well. She was again delivered with low forceps, of a living child, which weighe 9 lb. 7 oz., on Dec. 28th, 1903, 287 days after the las period. The labour lasted 5¾ hours. Mother and childre alive and well on Nov. 5th, 1919. No further pregnancies She had begun to menstruate at the age of 14, and stil menstruated (at the age of 52).

CASE 12.—S. H., a nullipara, aged 36, had a larg tumour in the upper right wall of the uterus (se photograph, Fig. 3, taken on Dec. 11th, 1895, and Fig. 4)

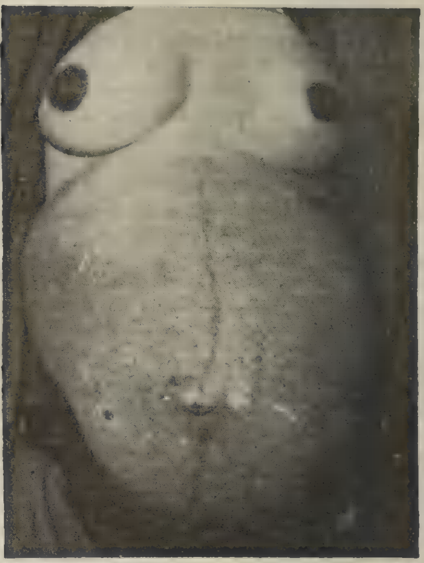


FIG. 3.—Case 12. Showing tumour larger than an adult head on right side of fundus; excessive pigmentation of abdominal wall and areolæ.

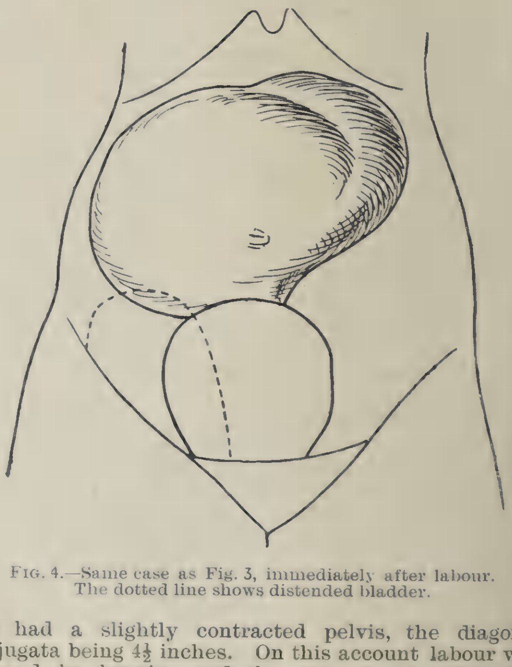


FIG. 4.—Same case as Fig. 3, immediately after labour. The dotted line shows distended bladder.

She had a slightly contracted pelvis, the diagonal conjugata being 4½ inches. On this account labour was induced by bougies and the patient was delivered naturally of a child weighing 8 lb. 1¾ oz. on Dec. 15th. Both mother and child recovered.

PATHOLOGICAL CONDITIONS RESULTING FROM TUMOURS.

In the following case, in which a pedunculated reniform tumour was found at the fourth month, rotation had occurred and had been followed by inflammation and probably sepsis.

CASE 16.—Mrs. S., aged 27, a nullipara, was suddenly seized with pain and inflammation on the left side of the abdomen when four months pregnant. A tumour was found on the left side of the body of the uterus, very tender on examination, and was diagnosed as a twisted dermoid. The tumour was removed by abdominal section on May 20th, 1906. There were no adhesions, but there was a little pus around the tumour, which was greatly congested owing to twisting of its pedicle, which was attached just inside the insertion of the left round ligament. The patient progressed fairly well for two days, then had suppression of urine, secreting only 1½ oz. in 16 hours, the urine containing one-third albumin and bile, and she died on the third day.

A post-mortem examination was not obtained and the tumour was not examined for micro-organisms, but the presence of pus shows that it was probably infected, and I think that death was probably due to septic thrombosis of the ovarian and renal veins. The tumour was a reniform subperitoneal pedunculated myoma weighing 9 oz. and measuring 11½ × 7 × 5 cm. The raw surface of attachment was at the "hilum." The section showed numerous hæmorrhages into the tumour and green patches near the surface. There was a small tag of lymph on the surface (U.C.H., Gyn. Cat. 1911, No. 270).

Intestinal Obstruction.

CASE 18.—M. R., aged 33 (children 0, abortion 0), married four months, in good health, was seen by me on Sept. 21st, 1908. She had last menstruated on July 19th–25th. She had several subperitoneal fibroids, which reached an inch above the umbilicus, and one, as big as an apple, behind the cervix of the uterus, which appeared to be two months pregnant. I advised that she should be carefully watched, and have Cæsarean section at term. Ten days later, in Staffordshire, she had an attack of intestinal obstruction, which, after eight days, was operated upon (supravaginal hysterectomy) by Mr. Spanton (see Proc. Roy. Soc. Med., Obs. and Gyn. Sect., Vol. II., p. 87). It was found that a loop of ileum had become gripped in the sulcus between the large subperitoneal tumours. This sulcus was evident when I saw the patient, and is noted in the diagram taken at the time; but its potential danger was not realised. The patient unfortunately did not recover.

Acute Anteflexion.

Acute anteflexion (resulting from the fixing of the stump of the fundus to the lower abdominal wall) was met with once (Case 21).

CASE 21.—F., aged 24, had the fundus of the uterus, with a fibroid weighing 4 lb. 9 oz., removed on Feb. 26th, 1895 (see Obstet. Soc. Trans., Vol. XL., p. 228), the pedicle being treated extraperitoneally by the serre-nœud and causing a ventro-fixation. The patient having married and become pregnant, the development of the uterus could only take place at the expense of the posterior wall, an acute anteflexion of the pregnant organ resulting. Cæsarean section was performed on Jan. 13th, 1903. The mother made a good recovery; the child also was strong and healthy, but lost its life from hæmorrhage from the cord owing to a badly tied ligature.

Retroversion and Retroflexion.

The next two cases are examples of retroversion and retroflexion of the pregnant myomatous uterus.

CASE 23.—In the second case a fibroid nearly as big as an orange was felt in the pelvis, and above it the retroverted uterus, pregnant nearly two months. The uterus was replaced, and the myoma was then found to be attached to the left corner of the body; it must, therefore, have twisted the uterus through 90°. The pregnancy continued normally and terminated in the birth of a living boy on Jan. 4th, 1920.

CASE 24.—The third case[1] was one of acute retroflexion of the uterus, produced by an adherent fundal myoma (Table C, No. 3). The noteworthy feature of this case was the bulging and thinning of the lower anterior segment, owing to the distension of the uterus having taken place at the expense of the anterior wall. Similar cases have been published by Herman[2] and Varnier and Delbet.[3] Herman's case, treated by Porro's operation, terminated fatally; the other two mothers recovered. In all three cases the death of the child before the operation was undertaken points to the necessity of operating before labour sets in.

Inversion of the Uterus.

CASES 25 and 26.—These were instances of fibroids causing inversion of the uterus after abortion and labour. The tumours were successfully enucleated and the uterus replaced. They are being published in the Proc. Roy. Soc. Med., Obs. and Gyn. Sect., for this year (Vol. XIII.).

Degeneration and Infection of a Fibroid.

CASE 30 (Table B, No. 5).—A. S., aged 42, married, children 0, abortion 1 (December, 1914). She was married in 1904 and had been an in-patient on Dec. 17th, 1914, at U.C.H. for incomplete miscarriage of about nine weeks, brought on by the use of abortefacients. The retained decidua was putrid, and on removing it an intramural myoma as large as an orange was found in the anterior wall of the uterus. Bleeding was profuse, but she recovered well, though the temperature was raised to 100° on three occasions up to the ninth day, and up to 99·6° on the twelfth day; the pulse also varied from 80 to 96. She was advised if she became pregnant again to come to the hospital for Cæsarean section. Accordingly she was admitted to U.C.H. on Feb. 21st, 1917, in good condition and near term. The child was lying obliquely with the head below displaced to the left by the fibroid, which was felt in the lower segment, more on the right side than the left, as a softish tumour as big as a large orange which came down into the pelvic brim. Two other small fibroids were felt in the body. The pelvic measurements were normal. The temperature was 99·4° on admission, but afterwards till the operation only twice reached 99°; the pulse varied between 88 and 104 (on admission 120). Cæsarean section was performed on March 1st, 1917, at 1.30 P.M.

The patient had had slight pains all night and strong pains after midday. The abdomen showed a marked prominence above the pubes, which looked like the distended bladder, but felt thicker walled. It was prominent, but felt soft and fleshy when the uterus contracted; in the intervals between the contractions it felt of the same consistence as the rest of the uterus. The incision did not extend to the fibroid, which was not encroached upon. The child survived. The operation lasted 52 minutes. A submucous myoma as big as a walnut, to which the placenta had been attached and which had been felt on abdominal palpation, was excised. The patient suffered severely from shock, although she had no pain and said she felt well; the pulse and temperature rose to 100; 13½ hours after the operation she had a rigor, with very rapid pulse. On the second day temperature 101°, pulse 120 to 166. She died 60 hours after the operation, obviously from acute sepsis.

Post-mortem.—The abdomen was distended, the abdominal wound healthy. Free fluid present in the peritoneum and a few flakes of lymph. Bowel distended with gas and filmed with pus in places. The deep surface of the wound in the abdominal wall showed early infection. Uterus large and flabby, incision sloughy. The fibroid in the uterine wall felt soft and fluctuating. On opening the preserved uterus the fibroid was found to be of a deep red colour with cavities containing bloody fluid and bubbles of gas in the uterine wall as in gas gangrene. The weather was cold and gas was found in many other tissues of the body. The *Bacillus welchii* was found by Dr. Teale in the tumour.

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[1] Proc. Roy. Soc. Med., Obs. and Gyn. Sect., vol. ii., p. 74, 1909.

[2] New York Journ. of Gyn. and Obs., vol. iii., p. 484, 1893.

[3] Ann. de Gyn., vol. xlvii., p. 102, 1907.

Tumours Giving Rise to Sepsis After Delivery.

The following are three cases selected out of seven in which submucous tumours were removed after childbirth or miscarriage by enucleation through the os uteri :—

Case 32.—A. C., 35, married, had had one pregnancy resulting in the birth of a living child 11 days before admission on July 21st, 1910. Three days before delivery she began to pass large clots, and on the day before delivery she had a severe attack of hæmorrhage (placenta prævia). Version was performed and a living child delivered. During the following week she had several attacks of shivering with high temperature (104°). I saw her in consultation on the eleventh day, found the uterus large and hard, reaching 8 inches above the pubes. A submucous fibroid, as big as a fist, could be felt on the right side per os. (See Fig. 5.) An offensive bloody discharge was present. Vaginal douches of iodine solution were given, and on July 30th the cervix was dilated by Hegar's dilators and the fingers. The tumour was seized with Doyen's cutting forceps and removed in pieces; the base was very adherent, and in pulling on it the uterus was inverted. This enabled the remains of the tumour to be completely removed. The cavity was then swabbed with iodine solution (ʒi to Oj) and the uterus replaced. Iodoform gauze was packed in the uterus for a few hours. The tumour weighed 1 lb. 3½ oz. It was dull red in colour and in parts was covered with a yellow-green slough. The operation lasted 35 minutes. The temperature, which had varied from 104° to 100° before the operation, reached 100·8°, 100·8°, 101·6°, 103° in the first four days, then gradually fell to normal. The patient left the hospital on August 18th, 1910, and wrote seven months later to say that she was quite well.

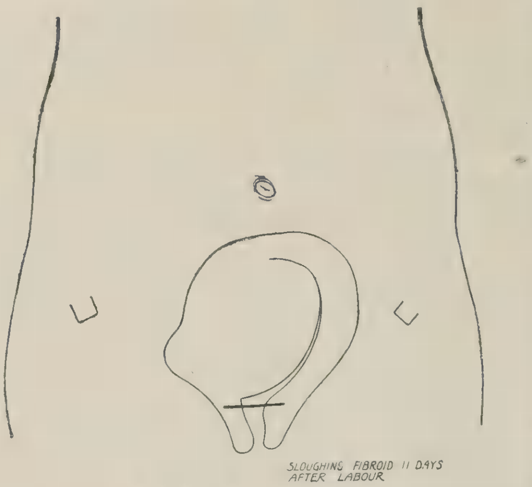

Fig. 5.—Case 32, showing submucous fibroid.

Case 35.—On Oct. 24th, 1898, at 11 p.m., I saw, with Dr. Webb, of Netley, Mrs. F., aged 34, suffering from fever (temperature 100°, pulse 120) and a foul discharge after a miscarriage which had occurred six days previously at the second month. A consultation had been held with local doctors and the finger had been passed into the uterus, the lining of which was smooth. The origin of the foul discharge was not discovered. Under chloroform I introduced my finger and found the smooth condition of the lower uterine canal, but I also felt bulging into the cavity a sessile submucous myoma as big as a walnut; above this, which acted as a ball-valve, some putrid decidua could be touched. I enucleated the myoma, removed a mass of putrid decidua, and washed out the uterus with 1 in 3000 perchloride of mercury solution. The temperature fell to normal, and the patient recovered perfectly. I attended her subsequently in her confinement on Dec. 23rd, 1901, which was quite normal; she also had a second child without any difficulty. She remained in good health till 1917, when she began to lose considerably, and the abdomen increased in size. She became cachectic. I saw her, in consultation with Dr. J. B. Blaikie and Sir Thomas Barlow, on Oct. 5th, 1917. She had a large, fixed, irregular, uterine tumour, nearly filling the abdomen, especially on the left side. She had also pleural effusion and hæmoptysis and other signs of growth in the lungs. From the cachectic condition, the hæmorrhages, and foul discharge it appeared probable that the growth was a uterine sarcoma.

She gradually wasted and died in February, 1918, nearly 20 years after the enucleation of the fibroid.

Case 37.—F. R., aged 31, married at 24; two children, one delivered with forceps 13 months after marriage, and a second at the age of 28, since when menstruation had been profuse and very painful, lasting seven days. She had had bearing down and prolapse of the uterus since the first child was born. Menstruation began at the age of 12, was regular, lasting two to three days, and moderate.

On admission, July 2nd, 1900, she was bleeding profusely, a result of an early miscarriage on the same day. A tumour as large as a goose's egg could be felt attached by a broad base to the left side of the fundus, and above it on the right was some friable decidua. (See Fig. 6.)

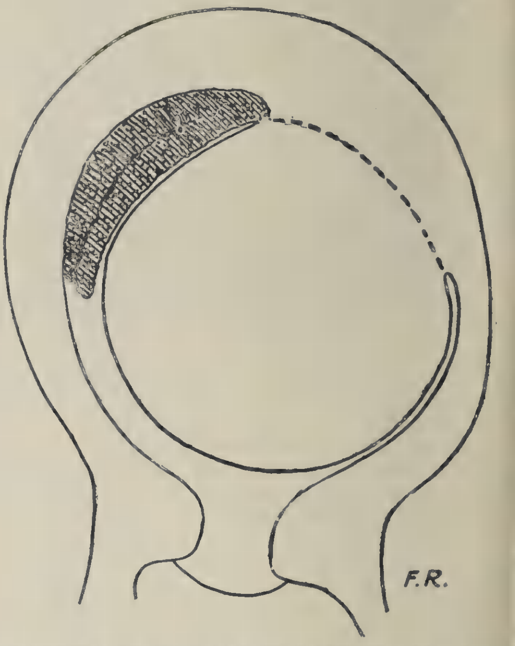

Fig. 6.—Case 37, showing submucous fibroid and decidua.

On July 3rd the tumour was removed by enucleation and the decidua by the finger, and an intra-uterine douche given. The temperature (99·6°) fell practically to normal and remained so till the 14th, when colporrhaphy and perineorrhaphy were performed. The wounds healed well. Fifteen months later, on Oct. 17th, 1901, the patient was delivered of a living child.

Frequency and Age-incidence of Fibroids.

Fibroid tumours complicating pregnancy are quite common, though very divergent opinions have been expressed by eminent obstetricians on this point. Thus, Landau states that in the Charité, amongst 19,052 labours fibroids were found only six times, and Schauta, in 55,311 pregnancies, found only 54 cases of myoma. Pinard, in 13,915 pregnancies, found 84 cases of myoma; and Pozzi, in 12,050 pregnancies, found 83. I have no doubt that the French obstetricians' figures most nearly represent the frequency with which this complication is diagnosed, but necessarily somewhat under-estimate the actual frequency, owing to small or inaccessible tumours escaping observation. I think it may be stated with approximate accuracy that fibroids occur about once in 150 pregnancies.

Bayle, in 1813, wrote that "fibroids scarcely ever appeared before the age of 30 years," but were present in nearly every woman over 40 years who had preserved the physical signs of virginity; and Virchow gave it as his experience that he had examined the corpses of few old virgins in which fibroids were not found, although in many women who had borne children the uterus remained free from them even in extreme old age.

It is now known that fibroids occur, though rarely, before the age of 25 years, and are practically unknown before puberty.[4]

In view of the slow growth of these tumours, of their occasional occurrence at an early age, and their production of severe dysmenorrhœa years before they become manifest clinically, it has been suggested that fibroids are of congenital origin. Essen-Möller has examined the uteri of 20 fœtuses and sucklings, and I have examined the uteri of 100 stillborn girls, without finding any signs of myoma.

Taking the ordinary period of woman's fertility at 30 years, the fact that in the first 10 years she may become pregnant, but is extremely unlikely to have a fibroid, and only in the next 20 years is liable to have both, invalidates most of the voluvoluminous statistics of sterility and abortion in women with fibroid, into which I shall not enter here.[5] There is no doubt that fibroids have a certain influence in causing sterility and abortion, but it is a slight one. Hofmeier is even of opinion that they *increase* fertility, but his statistics are not convincing. On the other hand, there seems to be reason to believe that sterility favours the occurrence of fibroids, and that regular child-bearing and suckling prevent, to some extent, their occurrence (Bayle, Virchow, Pinard).

Effect of Pregnancy on Fibroids.

When a patient with fibroids becomes pregnant the tumours usually increase in size from œdema, hypertrophy, and hyperplasia; the muscle cells become greatly hypertrophied, often swollen, sometimes vacuolated, and occasionally developed into large cells resembling the decidual cells of the endometrium (Gordon Ley). The tumours vary in their development; they usually enlarge. Sometimes no increase is noticeable; occasionally they appear to diminish and their shape is apt to become flatter and their consistence softer than in the unimpregnated organ. They may become more prominent as pregnancy proceeds and alter their shape to clinical examination, owing to change in their location or axes. They may become fixed by impaction in the pelvis or by inflammation resulting from mucous degeneration, necrobiosis, or infection. The necrobiotic fibroid is either grey or pinkish grey or red (usually of a dusky tinge)—the so-called "red degeneration," which is not confined to pregnant uteri, and in my experience is quite as common in the unimpregnated. Degeneration of the fibroid is sometimes accompanied by degeneration of the uterine muscle, which may be more markedly affected than the tumour cells. The degenerated fibroid may be sterile or may be infected, and occasionally suppurates, especially in the puerperium. It would appear that the degenerated or cystic fibroid forms a good cultivating medium for micro-organisms which may be dormant during the pregnancy. I have found an abscess containing a pure culture of streptococci in the centre of a fibroid in a virgin, who gave no clinical sign of its presence except a cachectic appearance. It seems then, that infection of degenerated fibroids may occur from the blood stream; the ordinary route of infection per vaginam often leads to necrosis of submucous tumours, examples of which have been given. Calcification sometimes occurs in fibroids complicating pregnancy, whether the tumours are of uterine or ovarian origin. *After labour* the tumours usually diminish in size and may alter in shape, owing to their rearrangement in the emptied organ. The subperitoneal tumours sometimes do not diminish very markedly in the puerperal month. Their apparent rapid diminution is rather due to increased difficulty of examination. They sometimes undergo very rapid involution, as in Lorain's[6] case, where a tumour, easily felt, as big as the head of an eight-month fœtus at the time of labour, was found post mortem to have diminished on the twenty-second day to the size of a hazel-nut.

As fibroids undoubtedly in some cases undergo great diminution, they are supposed occasionally to disappear after labour. Olshausen's cautious opinion is that it is "not altogether impossible."

In view of the occurrence of rupture of cystic fibroids in the unimpregnated, of which I have seen an example, it is remarkable that there does not appear to be recorded a case of rupture of the pregnant uterus before the onset of labour. Rupture of veins with intraperitoneal hæmorrhage is very rare (Gusserow, Schmorl, L. Meyer, Hamilton, quoted by Troell). The two cases I have met with occurred in nulligravidæ.

Torsion of pedunculated tumours sometimes occurs (Case 16, Table C, No. 2); it is especially liable to happen in the kidney-shaped tumours with pedicle at the hilum (Case 16, and Ribemont-Dessaignes and Grosse's case, quoted by Troell). It is a dangerous accident, 3 out of 21 cases collected by Troell and 1 out of my 3 cases having terminated fatally. This torsion may be transmitted to the uterus and even to the vagina. Troell gives a list of 21 cases of torsion of the pregnant uterus produced by fibroids.

Effects of Fibroids on Pregnancy.

Ectopic pregnancy is rarely met with (Table C, No. 2). In 1886 Gusserow could only find two cases recorded. The specimen from one of these is in the Museum of U.C.H., the case published by Harley in the first volume of the Obstetrical Transactions, which Mr. Lawrence and I, in preparing the Gynæcological Catalogue of U.C.H. Museum (1911), found to be a ruptured uterine horn, and not a ruptured tube, as described. Troell, in 1910, found 49 cases of tubal pregnancy recorded in literature, but Harley's case should be excluded. I am able to add a second specimen from U.C.H. Museum, sent to me by Mr. Bates.

Placenta prævia is said to occur with unusual frequency with uterine fibroids (Case 32). It is probable that hæmorrhages due to submucous fibroids, or to the insertion of the placenta upon them, are sometimes erroneously attributed to placenta prævia. In Case 30 the placenta was situated over a submucous tumour, but gave rise to no hæmorrhage during the pregnancy; the hæmorrhage in such a case may, however, lead to the discovery of the tumour (Case 31).

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[4] See H. R. Spencer, Obstet. Soc. Trans., vol xl., p. 228.

[5] See Troell; Studien über das Uterusmyom in seinen Beziehungen zu Konzeption, Schwangerschaft, Geburt und Wochenbett, 1910.

[6] Gaz. des hôp., 1869, No. 92, p. 361.

While abortion, except in the case of submucous tumours, does not appear to occur with much greater frequency than in normal uteri, both pre-mature and post-mature labour are apt to occur.

Pain or tenderness over the tumour or uterus are frequent symptoms, especially in necrobiotic tumours. The pain is usually easily relieved by rest, light diet, and anodynes. The "unbearable pain," which some authorities have given as a justification for performing hysterectomy in early pregnancy, I have never met with. In cases of torsion, or inflammation, or infection of the tumour, the symptoms are acute, and require prompt surgical interference. Pressure by the tumour on the veins may cause œdema of the lower limbs; albuminuria is not uncommon, and ascites may occur (Table C, No. 2; also Landau's case). Abnormal (especially breech) presentations are frequently met with. The labour is often surprisingly easy in view of the advanced age of many of the patients (Cases 2, 5, 6, 7). Even in the case of tumours encroaching on the brim it is found that the tumour is often drawn out of the way during labour. In some cases forceps may be required for inertia. Retention or incarceration of the placenta or decidua may occur (Cases 31, 35, 37), and post-partum hæmorrhage in cases where the submucous tumours are present may be severe. On the whole, in cases suitable for delivery per vias naturales the labour is often normal, even when the tumours in the upper part of the uterus are quite large. In cases, however, where injudicious attempts are made to deliver the child by forceps or version past tumours even of small size, dangerous bruising of the tumours, or even rupture of the uterus, may occur.

DIAGNOSIS.

The diagnosis of pregnancy and of fibroids sometimes presents difficulties, which are increased when the two are combined. It is more likely that a mistake will be made over the pregnancy than the fibroid. In the first half of pregnancy the great factors in the diagnosis are the suppression of the menses, even if only for a few days, and a uterus larger than it should be and irregular in shape, the irregularities being hard. A uterus may be irregular from pregnancy in one cornu—a lop-sided uterus—but it has the normal consistence; when it contracts and becomes hard it assumes the normal shape. If the pregnancy is advanced to the second or third month the softness of the cervix and body are characteristic, the latter being sometimes best felt per rectum.

In the early months the points to bear in mind are the cessation of menstruation, the rapid growth of the tumour, the consistence of the uterus, and the hard irregularities upon it.

In the second half of pregnancy, when the "certain" signs (heart sounds, parts or movements of the child, and ballottement) are available, difficulties sometimes are met with. In very rare cases, of which I have seen only two or three instances, the uterus remains as hard as a fibroid throughout pregnancy, and is not subject to those periodical relaxations and contractions which ordinarily characterise it. On the other hand, a degenerated fibroid uterus, by its consistence and livid appearance, may closely simulate a pregnant uterus with its contained fœtus, but, of course, the certain signs and the breast changes are absent; menstruation is usually excessive, and I believe the bulging of the anterior lower segment, which is sometimes seen in the case of fibroids, is never met with in normal pregnancy, though it may be found extremely marked in retroflexion of the pregnant uterus, produced by fibroid of the fundus adherent in the pelvis (Case 24). When there are irregularities on the surface of the pregnant uterus the diagnosis is simplified; the prominences are hard, the pregnant uterus soft and contractile; the fibroids do not alter their position, as parts of the fœtus do, and they may become more marked during uterine contractions, which obscure the fœtal parts; at most, the tumours have a slight mobility, but return to the same position even when repeatedly examined. Large subperitoneal or intramural growths, or small multiple growths, may render the palpation of the fœtus difficult till the pregnancy is somewhat advanced.

If the fibroids are degenerated they may feel softer than the rest of the uterus when the latter contracts (Case 30). When cystic and of large size they are difficult to distinguish from ovarian tumours (Case 15); the same difficulty may occur in diagnosing twisted fibroids in the acute stage, though the hardness will be in favour of uterine fibroid, and the age of the patient may assist the diagnosis.

In all cases of difficulty, especially with impacted or inflamed tumours, examination under anæsthesia is of the greatest value. I need only allude to the resemblance of a horn of a double uterus to a fibroid, for which it has been mistaken, and has led to the sacrifice of the uterus when excision or even replacement of the horn would have sufficed.

Diagnosis in the Puerperium.

After the birth of the child the diagnosis of subperitoneal and intramural tumours is usually easy, owing to the lax state of the abdominal wall and the smaller size of the uterus. Submucous tumours may be overlooked, unless they give rise to hæmorrhage or to fever from necrosis or gangrene. If the uterus is large and hard in the puerperium a submucous fibroid should be suspected and the uterus should be explored. Fever may arise either from retention of the products of conception or from infection of the tumour, especially if it has undergone degeneration. A tender subperitoneal tumour in the puerperium associated with fever will suggest infection. I have known a large intramural tumour mistaken for a second twin; in that case the hardness of the tumour and the absence of signs of the fœtus rendered the diagnosis easy, but if the tumours were degenerated considerable difficulty might arise, which would be overcome by exploration through the cervix.

A fibroid impacted in the pelvis, especially if it is cystic (Case 27), may closely resemble an ovarian cyst, and a subperitoneal fibroid, after abortion, may resemble a tubal mole, from which its hardness distinguishes it. Inversion of the uterus is met with, usually some weeks or months after labour or abortion. In addition to the usual signs of inversion, there will be a tumour, usually separated by a groove and distinguishable from the uterus by its harder consistence. A case of mine in which these two points of distinction were absent is, so far as I know, unique.[7]

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[7] See Proc. Roy. Soc. Med., Obs. and Gyn. Sect., vol. xiii.

PROGNOSIS AND TREATMENT.

The prognosis is, in the great majority of cases' good when the patients are attended with judgment and careful regard for asepsis. The three fatal cases here published, which are all that I have met with, are examples of dangers which sometimes arise. The first death (Case 18) from intestinal obstruction, due to nipping of the ileum between two subperitoneal fibroids, is a very rare accident, of which I have not been able to find another example. The other two deaths (Cases 16 and 30) suggest the necessity of bacteriological examination of the tumour before resorting to conservative abdominal operations.

The great majority of cases require only careful supervision during pregnancy, periodical examination of the urine, and rest, mild aperients, and anodynes if the tumours become painful. Induction of abortion and premature labour and forcible delivery past obstructing tumours are contraindicated. Forceps may be required for inertia, but should never be used to overcome resistance caused by tumours. Craniotomy and embryotomy are called for only in cases where the fœtus is dead and the mother not infected. Polypi and pedunculated subperitoneal tumours should be removed.

Vaginal myomectomy may be required for cervical fibroids, but should not be performed for retrocervical tumours.

Abdominal myomectomy is rarely needed, and usually only for very large or twisted or necrobiotic tumours. It not infrequently leads to abortion and to hysterectomy in order to stop the hæmorrhage from the bed of the tumour, and it often fails to remove all the tumours present in the uterus. Before performing myomectomy, as also before conservative Cæsarean section, the tumour should be examined bacteriologically, and if it is infected the whole uterus should be removed.

Hysterectomy during early pregnancy, in the absence of hæmorrhage or infection, is rarely called for. Myomectomy and hysterectomy in early pregnancy are frequently performed by some gynæcologists.

Thus, T. Landau[8]—who has written an important monograph on the subject of myoma and pregnancy, illustrated by many fine plates of fibroid uteri

TABLE A.—*Author's Cases of Pregnancy Complicated by Fibroids Treated by Abdominal Myomectomy.*

No.	Initials.	Age.	Children.	Abortion.	Duration in minutes.	Date of operation.	Drainage.	Adhesions.	Recovery.		Tumour.	Remarks.
									Mother	Child		
1	B.	41	4	0	63	July 5, 1901	Gauze to broad ligament.	To omentum and broad ligament.	Yes.	No.[*]	Cystic myoma 1 foot in diameter, solid part over 17 lb., and several pints of fluid.	Operation during labour (see Obstet. Soc. Trans., vol. xlvi., p. 122). (Case 15.)
2	M. S.	30	0	0	54	March 5, 1906	No.	To omentum	,,	—	Pedunculated twisted reniform tumour attached by hilum just internal to right round ligament 11·5 × 9 × 5 cm., vascular, degenerated adhesions on surface.	Operation 3 weeks after abortion at 5th or 6th week. (Case 17.)
3	S.	27	0	0	55	March 20, 1906	,,	No.	No.	—	Pedunculated twisted reniform tumour attached by hilum just internal to left round ligament. Tumour 9 oz., 11·5 × 7 × 5 cm., hæmorrhage into it, pus around it.	Operation at 4th month of pregnancy. Patient died on 3rd day with suppression of urine, probably from septic thrombosis of ovarian and renal veins. (Case 16.)
4	K. B.	26	0	0	60	Nov. 11, 1911	,,	To omentum	Yes.	Yes.	1 lb. 1 oz., 7·5 cm. in diameter, pedicle 3·7 cm. thick, lymph on surface; necrobiotic; sterile.	Operation at 11th week of pregnancy. Child 7 lb. 15½ oz., born 272 days after marriage; vertex presentation. (Case 14.)
5	A. I.	29	2	0	74	July 25, 1913	,,	To omentum and abdominal wall at navel.	,,	,,	3¾ oz., 7·5 × 5 × 4·5 cm., calcified and degenerated.	Operation at 6th week of pregnancy. Child 6 lb. 10 oz., delivered naturally; vertex presentation March 10th, 1914. (Case 13.)

[*] Dead before operation.

TABLE B.—*Author's Cases of Pregnancy Complicated by Fibroids Treated by Conservative Cæsarean Section.*

No.	Initial.	Age.	Children.	Abortion.	Duration in minutes.	Date of operation.	Drainage.	Adhesions.	Recovery.		Fibroid removed.	Remarks.
									Mother	Child		
1	C.	34	0. (married 5 years)	0	58	March 1, 1907	No.	No.	Yes.	Yes.	No.	Fibroid size of lemon in left lower segment; generally contracted pelvis; healed tubercle of sacro-iliac joints and pelvis.
2	A.	31	2	0	43	Jan. 8, 1916	,,	,,	,,	,,	,,	Fibroid size of grape right upper anterior wall; contracted pelvis. Several small fibroids found on Dec. 14th, 1918, when Cæsarean section successfully done for the 4th time.—(H. R. S.)
3	S.	42	0	1	52	March 1, 1917	,,	,,	No.	,,	,,[*]	Degenerated infected myoma of lower segment. *Bacillus welchii* in tumour. Patient died of acute sepsis in 60 hours. (Case 30.)
4	B.	25	0	0	40	March 17, 1917	,,	,,	Yes.	,,	,,	Pelvis contracted (3¼-inch conj. vera); two fibroids size of grape and marble at back of uterus.
5	M.	38	1 (dead; forceps)	1	60	Feb. 8, 1918	,,	,,	,,	,,	,,	Pelvis contracted (3½-inch conj. vera); one child delivered dead with forceps (difficult); small fibroid in anterior wall.

[*] A small submuccus tumour removed.

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[8] T. Landau: "Myom. bei Schwangerschaft, Geburt, und Wochenbett, 1910.

TABLE C.—*Author's Cases of Pregnancy Complicated by Fibroids Treated by Cæsarean Section followed by Abdominal Hysterectomy.*

No.	Initials	Age.	Children.	Abortion.	Duration in minutes.	Date of operation.	Drainage.	Adhesions.	Recovery.		Nature of operation.	Remarks.
									Mother	Child		
1	A. D.	28	0	1	51	May 14, 1892	No.	No.	Yes	Yes	Porro's operation (299 days after last menstruation).	(See Obstet. Soc. Trans., vol. xxxviii., p. 390.) Breech presentation. Labour obstructed by cervical fibroids. Mother quite well in 1914; the daughter, 5 ft. 10 in. in height, well developed, recently married. Uterus weighed 6 lb.
2	B.	28	0 (married 5 years)	0	75	March 18, 1905	,,	A few around ruptured tube (ectopic gestation.)	,,	,,	Cæsarean section + total abdominal hysterectomy.	(See Obstet. Soc. Trans., vol. xlviii., p. 240.) Patient in labour. Footling presentation; membranes ruptured 8 hours; urine highly albuminous; ascites. Uterus 6 lb. 2 oz.
3	M. A. N.	38	0	0	58	March 29. 1908	,,	Of pedunculated fibroid to Douglas.	,,	No†		(See Proc. Roy. Soc. Med., Obs. and Gyn. Section, vol. ii., p. 74.) Breech presentation. Operation for retroflexion of uterus by fundal fibroid adherent in Douglas's pouch; uterus 5 lb. 12½ oz. (with placenta). Operated on for spindle-cell sarcoma of left ovary, May 20th, 1919.
4	S. R.	37	3	1*	55	July 10, 1909	,,	No.	,,	Yes		(See Proc. Roy. Soc. Med., Obs. and Gyn. Section, vol. iii., p. 82.) Head presentation. Operation for painful fibroids and contracted pelvis. Difficult labour, last 10 years before; 1 child imbecile, injured by forceps. Uterus 2 lb. 14 oz., posterior wall 2 in. thick; hyaline degeneration of uterine muscle and fibroids.
5	C.	40	0 (married 9 years)	0	90	Oct. 12, 1914	,,	,,	,,	,,		Operation for painful fibroids and contracted pelvis. Fibroids in posterior lower segment in pelvis, but had risen at operation. Patient anxious for living child. In labour 3 hours; head presentation. (Case 29.)
6	M. E.	42	0 (married 3 years)	0	54	Sept. 30, 1916	,,	,,	,,	,,		Operation for fibroids and contracted pelvis; head presentation. Conjugata vera 3½ in. Fibroid 3¾ in. in diameter, 2⅞ in. thick in lower segment to level of internal os. Mother and child well in 1919. Case 28.)

* Induced at 6½ months. † Dead before operation.

taining little fœtuses sacrificed in some cases, it appears to me, unnecessarily by the operation of hysterectomy—gives a list of 11 cases of abdominal myomectomy during pregnancy, apparently operated upon by his brother and himself. All the patients recovered and only one aborted. A careful reading of the history of the cases leaves a doubt as to whether the operation was in all necessary or advisable.

Landau also gives a list of 19 cases in which hysterectomy was performed in the early months of pregnancy; in some of the cases the pregnancy was not diagnosed before the operation; in others, what was intended to be a myomectomy terminated in hysterectomy; one of the mothers died; the others were, of course, sterilised, and the children sacrificed. The practice of hysterectomy in the early months of pregnancy is, in my opinion, much too common both abroad and in this country; I have never found it necessary.

In Table A are given my cases of abdominal myomectomy during pregnancy. Of the mothers, four recovered and one died (undelivered) at the fourth month of pregnancy. In No. 1 the child was dead at the time of the operation. In No. 2 abortion occurred before the operation. In Nos. 4 and 5, operated on at the eleventh and sixth week, the pregnancy continued and living children were born.

Every endeavour should be made to enable pregnancy to be carried on until the child is viable, when a conservative or radical Cæsarean section may be performed.

Conservative Cæsarean Section (Table B).

This is rarely indicated by the fibroids alone, but may be performed when fibroids are associated with contracted pelvis or malpresentations of the child, especially in elderly primiparæ. In the case of a single myoma it might be possible to remove the myoma and child through the same incision. Landau, who removed the uterus 19 times during early pregnancy, does not record a case of conservative Cæsarean section.

My five cases are given in Table B. In all contraction of the pelvis and the presence of fibroids were the indications for the operation. The five children survived; one mother died owing to my failure to discover the infection of the tumour. The case should have been treated by total abdominal hysterectomy.

Cæsarean Section Followed by Abdominal Hysterectomy (Table C).

Landau performed the operation in two cases only; the mothers and one child recovered; of the other child it is stated that it was a well-developed boy, but whether it survived or not is not mentioned. My six cases are given in Table C. All the mothers recovered, and all the children survived except one, which was dead before the operation was performed. Total hysterectomy, which was performed in five of the cases, is, in my opinion, preferable to amputation in pregnant as in non-pregnant cases, especially as it provides drainag and removes the possibly infected cervix.

Troell gives a list of 20 cases (including 2 of mine) operated on since 1900, with 2 deaths. I am able to add 3 more cases (Table C, Nos. 4, 5, 6 making 23 cases with 2 deaths.

In the puerperium vaginal myomectomy is usuall the best treatment for submucous tumours, eve when they are infected or invert the uterus. It should usually be tried before resorting to hysterectomy, which I have never found to be necessary. In infected subperitoneal or intramural tumours total abdominal hysterectomy should be performed.

Presidential Address

ON

SURGERY DURING THE WAR.

Delivered before the Medical Society of London.

BY V. WARREN LOW, C.B., M.D.LOND., F.R.C.S.ENG.,
SURGEON TO ST. MARY'S HOSPITAL, LONDON, W.

GENTLEMEN,—He would indeed be singularly wanting in imagination who could occupy this chair without feeling a grave sense of responsibility at being entrusted, even for a year, with the guidance of the affairs of this old society. Among my predecessors have been many able men, some very eminent and some, I am glad to think, very ordinary. Genius, while it adorns such a position as this, is not really essential. All have, however, resembled each other in doing their best in the interests of the Medical Society, and in this it will be my humble endeavour to imitate them.

I am particularly lost in admiration of my four immediate predecessors, who, during the chaos of the last five years, have maintained, and at times have even excelled, the high standard of interest which has ever been the feature of the meetings of the Medical Society of London. This, I think I can say without fear of contradiction, has been a feat unique in London, and, so far as I can judge, in the provinces. That this has been due to the energy of our Presidents, of our secretaries, and of our registrar is undeniable, but I would also suggest that the peculiarly catholic composition of the meetings of this society may also have been a contributory factor. Here practitioners of medicine in the widest sense of the term meet to discuss problems of mutual interest, and there is no anomaly in the Medical Society having as its President a laryngologist or a surgeon. Discussions at meetings composed entirely of physicians, or entirely of surgeons, or entirely of men interested in one or other of the specialties, tend to become highly technical, and this tendency often develops to such an extent that further fission takes place and coteries are formed to discuss still more technicalities. In a profession so highly technical as ours has become, there can be no denying that such discussions are most necessary, but it must also be remembered that we are all practitioners of medicine in the broad sense of the term, and the side-lights that may be cast on a surgical problem by physicians, or by those interested in other specialties, or vice versa, may do much to preserve that sense of perspective, of which the loss so often mars an otherwise brilliant conception.

I have dwelt, perhaps you may think unnecessarily, on what is an obvious truth, but there are times when to emphasise a point one must labour the obvious. The point I wish to emphasise here is that in this new world, on the threshold of which we are said to be standing, there is a place—there is a need—for this old Medical Society of London. I know of no society which more closely links together all those within its folds, whether they be general practitioners, in the modern sense of the term, physicians, surgeons, or those interested in the various specialties. Probably no body has retained for 150 years so exactly the character intended for it by its founder as has this society retained the impress left on it by Dr. Lettsom. It is for us to see that this heritage survives the present taste for reconstruction. Reconstruction is in the air, it crops up in the most unlikely places. It has not altogether passed us by. An attempt to reconstruct us on bisexual lines, which sent a shiver down the backs of some of our sturdiest, failed, to be followed by a more successful attempt to reconstruct our financial position. Our subscription after being 1 guinea for 146 years has now been doubled—that, alas! is one of the peculiarities of this new world, everything is more expensive. How necessary was this is well set forth in the report of our treasurer, Dr. Mitchell Bruce, to whom this society owes a deep debt of gratitude. Possibly this increased subscription may be responsible for some resignations, but these will be due as probably to the general post in the profession, which is inevitable as the result of a five years' war. It should be our endeavour to see that each of these vacancies is filled up twice over, and that this old society is once more launched forth on another century of usefulness. In this connexion I would remind the Fellows that we have lost by death during the last 12 months 16 of our number. Three of these were old Presidents—Mr. Brudenell Carter, Dr. Frederick Roberts, and Sir William Dalby—all three joined the society in the early "seventies." The society has sustained a serious loss in the untimely death of Dr. Leonard Guthrie, an old colleague of mine, as secretary and later a Vice-President. I had looked forward to seeing Dr. Guthrie in this chair, one of our most distinguished Presidents. We also deplore the loss of Dr. Cahill, Dr. Lovell Drage, Mr. Betham Robinson, Dr. Percy Lush, Dr. Nias, and Dr. Guthrie Rankin, all of whom had served the society on the Council.

THE TREATMENT OF CONTAMINATED WOUNDS.

During the war the papers and discussions were, with few exceptions, on military medicine, surgery, or hygiene, and a study of the last four volumes of the Transactions is to epitomise the various problems that have had to be faced during the last five years. Many of these problems fortunately may not have to be faced again, and much that has been learnt may be cast into "the limbo of half-forgotten things." But from it all will emerge observations, technique, and conceptions which will, I believe, have a far-reaching influence on medicine and surgery, and will occupy the discussions of this and kindred societies for many sessions. It is an interesting exercise to speculate on the value of the various legacies left us by the war, and it is my intention to endeavour to appraise the value of a few of our newly acquired surgical assets as tested by the needs of a civilian population.

In the summer and autumn of 1914 surgeons were made to realise that their influence over the course of a septic wound was remarkably slight. Enormous progress had been made in the prevention of sepsis; so much so that sepsis in any marked degree was seldom seen in ordinary operation wounds or in accidental wounds which had received prompt treatment. Owing to their comparative rarity it was not perhaps completely realised that wounds in which sepsis was well established were practically left to Nature, with the assistance, possibly, of drainage and protection. In Flanders in 1914 such self-deception became no longer possible; practically every wound was septic, and surgery was comparatively helpless. Surgeons who had hitherto relied on extreme cleanliness fled to chemical antiseptics, and the advocates of antiseptics discarded their old favourites for each new germ-killer which the ingenuity of chemists could suggest. It was about this time that a friend of mine who was doing a good deal of surgery in one of the war zones told me that he derived much assistance and stimulation from reading Guthrie's experiences in the Peninsular War.

Gradually, however, we came back to first principles. It was slowly realised that a contaminated wound is not at first an infected wound, and that the careful excision of contaminated and devitalised tissues was the most important measure of antisepsis. It was also about this period emphasised, though it had long been realised, that bacteriological and surgical asepsis do not coincide, and that a wound is capable of clean healing though in it the bacteriologist might still be able to demonstrate germs. Consequently many of these wounds were sewn up at once; while others were watched for a few days, and, if still uninfected, underwent a secondary suture, with enormous advantage in saving of time and suffering to the wounded men. In the summer of 1915 I was excising wounds in the Dardanelles, but I had not realised the truth of the second proposition and I spoilt my results by excessive drainage, and thereby facilitated subsequent infection.

But, though surgery had thus improved the treatment of the wounded man, and had again proclaimed the eternal truth that the healing of wounds lies in the prevention of sepsis, yet we had not yet learnt how successfully to treat a septic wound when once infection was well established, and this is a question we may well ask ourselves now. The nearest approach to it, in my opinion, is the method of wound treatment known under the name of the Carrel-Dakin. Hypochlorite of soda is not a modern innovation, as it was discovered in 1788, and by its aid Louis XVIII. was, I understand, embalmed. I suppose most surgeons of my age have often employed the liquor sodæ chlorinatæ of the Pharmacopœia for stinking wounds.

Now solutions of hypochlorite are undoubtedly irritating, a quality usually ascribed to the free chlorine, but which was shown by Dakin to be due to free alkalies. By providing for the neutralisation of these alkalies Dakin has provided us with a very serviceable antiseptic. The Carrel-Dakin treatment, however, carries us further than this. Hypochlorite of soda rapidly disappears when in contact with the secretions of the wound. It is conceivable that, in this respect, it resembles other antiseptics; in order, therefore, to obtain its proper effect it should be instilled into wounds continuously or at short intervals. There is an overwhelming mass of evidence from our various war zones as to the efficacy of this method of treatment, and to this I must add my own, though for some time I was undecided between this and the physiological treatment by hypertonic salt solution, as suggested by my colleague, Sir Almroth Wright. Perhaps almost the best testimonial the Carrel-Dakin treatment has had was from my colleague, Alexander Fleming, who, while admitting the efficacy of the treatment, ascribes its success rather to its physiological than to its bacteriological action. Whether this be so or no is probably not yet capable of scientific proof, but every surgeon would welcome some means of controlling and stimulating the physiological defences of the body against sepsis, and it is to such men as Sir Almroth Wright and his co-workers that we shall have to look for help in this direction.

One variety of sepsis has, however, lost some of its terrors. Whatever else this war has achieved it has certainly thoroughly stabilised the reputation of tetanus antitoxin as a prophylactic against tetanus, if administered at a reasonable interval after the infliction of the wound. In fact, its very success has created a new disease, and the existence of localised tetanus of the limbs has now been firmly established. In looking for these cases one has also had opportunities of realising the extraordinary number of cases of hysterical spasm of the extremities which may result from wounds, in some cases even following local tetanus. I cannot do better than to refer you to a most interesting paper by Dr. A. F. Hurst in the *British Journal of Surgery*, in which an account is given of a number of these cases and of their successful treatment, not by psycho-analysis nor by hypnosis, but by explanation, persuasion, and re-education.

MODERN VIEW ON SHOCK.

Never, perhaps, have experimental physiologists and clinicians had a more fruitful field and a better opportunity of research than have the Special Investigation Committee appointed by the Medical Research Committee to undertake the coördination of inquiries into surgical shock and allied conditions, and the green pamphlets of the Medical Research Committee are worthy of and require the most careful consideration of every surgeon.

In 1914 the current view of the cause of the failure of the circulation in shock was that enunciated by Crile, that it was due to exhaustion of the vaso-motor centres by excessive sensory stimulation, and that the blood accumulated in the great veins of the splanchnic area. It was always a stumbling block to this view that practical surgeons could never be certain of this accumulation of blood when performing hurried laparotomies on shocked patients. New conceptions now hold the field, and while excessive sensory stimulations may be a contributing factor, the most potent agents in the reduction of blood pressure are probably toxic substances produced by the damage to the tissues, particularly to muscles. The blood stagnates, not in the splanchnic area, but in the capillary network, owing to the general loss of the normal tone of the capillary walls. There is much experimental work and clinical observation in favour of these views, and the shock produced in cats by the injection of the substance histamine is a very suggestive analogy.

By a very ingenious method of injecting a non-toxic, non-diffusible, dye-substance—vital red—into the blood stream and estimating its dilution N. M. Keith has shown that the shocked man has a reduced blood volume, and that his power of recovery is largely connected with the power of the circulation to take up fluids from the tissues or to retain added fluids. The reduced blood volume in simple shock is probably due to the transudation of plasma through the abnormally permeable capillary walls. It is suggested that these effects are produced not so much by the exhaustion of the nervous control as by the presence in the circulation of certain cleavage products of protein acting as chemical messengers or hormones. To use a simile of Professor A. Keith's, there is not only a telegraphic and telephonic inter-communication via the nerve fibres in the body, but there is also a postal system, and the tissues are influenced by missives arriving in the blood stream. The presence of adrenalin in the circulating blood of frightened cats, as shown by Cannon and also by Elliott, is a hint that shock from emotional stress has a similar causation. These considerations open up another chapter in the study of the modern theory of hormones, substances which Professor Keith has suggested are possibly even responsible for our racial characteristics. There is nothing startlingly new in the treatment of shock, but our knowledge has become more systematised and we have shed certain superfluities. Rest and warmth still occupy the chief place; stimulants and drugs, except small doses of morphia, have been discarded. Gas and oxygen are even more firmly established as the anæsthetic of choice where local anæsthesia is not convenient. Most important is the free administration of fluids by mouth or by rectum, or, if the shock be more profound, intravenously. Here, however, is a difference. Normal saline, whether subcutaneously or intravenously, has been discarded, and for it has been substituted either Bayliss's gum saline solution or blood. There is still some controversy as to which of these two is the more efficacious, and it is possible that the fact that a large proportion of the shock cases in France were also cases of hæmorrhage may have given an undue advantage to the transfusion of blood. Robertson's technique of indirect transfusion of citrated blood was that usually employed, and will be a useful addition to the equipment of our operating theatres. It must, however, be borne in mind that as operating surgeons in civil life we are, perhaps, more concerned in the prevention of shock than in its cure; but in connexion with the large industrial centres resuscitation wards will be as necessary as they were in the casualty clearing stations in France, only let us hope they will not be so busily employed.

The excision of the contaminated and devitalised tissues of the wound wall, as the prime measure of antisepsis, influenced the surgery of every part of the body. In head injuries Cushing and his followers excised the scalp wound and also the wound of the skull en bloc, sucked out the debris in the wound track through a soft catheter, and occasionally successfully removed the foreign body by means of a small iron rod (usually a French wire nail) attached to a powerful magnet. What, perhaps, is a useful fact for future guidance is that the majority of these operations were performed under novocain.

ABDOMINAL SURGERY IN TWO WARS.

Abdominal surgery, after suffering somewhat from the conservatism of the South African War, was resuscitated by the efforts of, among others, an old secretary of this society, Sir Cuthbert Wallace, and many feet of injured intestine were successfully excised by many operators from patients who would otherwise have died miserably. Perforated viscera were mended and bleeding vessels were ligatured. That this was possible was due largely to the peculiar immobility of the fighting zone in the late war, and also to the fact that the army adopted, what has always been a feature of civil hospitals —namely, the principle of team-work. The term "team" in this connexion may be new. I think in London the expression "firm" was not uncommon, but under whatever title the principle was well established that a surgeon and his assistants should be associated together for at least some months, and in many cases longer. This is what was attained in the casualty clearing stations in France, but on a scale hitherto undreamt of in civil or military experience, and it says much for the organising energy of those who initiated it. In the Dardanelles, owing to the peculiar nature of the front, we were able to bring our hospital ships up even closer behind the fighting line, and I have opened the abdomen of a man in a first-class theatre with the aid of sisters and nurses within three-quarters of an hour of having seen him hit by a shell.

I should like to pause for a moment here to say one word in defence of the conservatism of the South African War. That was essentially a war of movement. We usually slept some 10 to 15 or 20 miles from where we were in the morning. Transport difficulties debarred us from tents, beds, and clean clothes for the wounded, our nearest fixed hospitals were often several days behind us, even with the fleetest transport we possessed. There was no fuel for sterilisation, and often very little water. Anything like an abdominal operation was out of the question. Human nature is extraordinarily adaptive, and gradually our beliefs adapted themselves to our environment, and we became firmly, and I think honestly, convinced that non-interference was the wisest course in bullet wounds of the abdomen; it must be borne in mind that shell wounds were extremely rare.

In addition, we were occasionally meeting cases where this belief was obviously justified. In looking through an old note-book I see that in the fighting outside Pretoria in June, 1900, I picked up and looked after a gunner with a bullet wound through the body, the entrance being in the left loin about 1½ in. from the middle line and below the twelfth rib, while the wound of exit was 2 in. to the left of the middle line, and about 1½ in. above the umbilicus. This man apparently never suffered the least inconvenience after the initial pang of the wound, and a week later his only complaint was of the prolonged starvation to which I had subjected him.

During the latter part of the war abdominal injuries were treated as they would be treated in the civil hospitals of any big city, and it was realised that even a blank exploration was better than leaving a doubtful case. The only novelty was its adaptation to war conditions, and possibly the chief legacy it has left us is a number of enthusiastic young surgeons thoroughly well trained in the technique of abdominal surgery.

NEW LIGHT ON SURGICAL PROBLEMS.

It is, perhaps, when we come to the application of the principle of excision of the wound to injuries of the chest that we see the most startling innovations. The free opening of the chest in cases of hæmothorax and in wounds of the lungs produced by shells, with the immediate and tight closure of the wound, as advocated and practised by Pierre Duval and introduced into our hospitals by Mr. George Gask, another old secretary of this society, in addition to saving many lives abroad will, I think, be a prelude to another chapter in thoracic surgery. It has, at least, taught us that no special pressure chamber installation is necessary for lung surgery, and that a total pneumothorax, so far from being a source of danger, actually places the lung under the best possible conditions for surgical manipulation. I faintly realised this so far back as 1904, when, while endeavouring to remove a growth, which I thought was confined to a rib, I found myself in the course of the operation with a widely opened thorax and a collapsed lung, from which I had removed a portion of the lower lobe. My astonishment at what I had done was only equalled by my surprise at the way in which the lung responded to the ordinary measures of hæmostasis, and at the comparatively slight disturbance of the patient, who made an easy recovery, but, unfortunately, later succumbed to a recurrence of the growth. Again in this class of surgery has the superiority of regional and local over inhalation anæsthesia been emphasised, and, although I realise that many surgeons for some years have made use of local anæsthesia for excision of ribs in opening empyemata, I think now that the practice will become more general.

Seldom has human ingenuity been subjected to a more severe test, and seldom has there been a better response than in the treatment of fractures during the last five years. It would be beyond my powers to appraise the value of all the various splints which have been devised for the treatment of almost every variety of fracture, and which will, I trust, have a profound influence on the future treatment of fractures in civil hospitals. There will be, I venture to predict, a complete emancipation from the somewhat rigid lines on which these injuries have hitherto been treated; and there will also be, I think, a revolt against the tyranny of conventional splints, and, may I add, of instrument makers.

Until 1914 there had been little encouragement for the busy hospital surgeon who was gifted with a mechanical mind to experiment much in splints. During the war such a man has had every opportunity. To those of us who have had the care of military cases at home those voluntary associations known under such names as war stores or depôts, working in conjunction with the Red Cross, have been the greatest boon. Educated men and women, as a labour of love, have shown the greatest skill and untiring patience in planning splints on the specifications of surgeons to meet the peculiar needs of particular cases. I cannot imagine a more practical form of charity than the continuance, in a modified form, of some such bodies as these to supply the needs of the civil hospitals. Every hospital should have, as some already do, a man sufficiently skilled as a metal worker and carpenter who could himself make, under the direction of the surgeons, a proportion of the splints and mechanical contrivances required in the hospital. Whether this would be an economy or not I am not in a position to say, but I am convinced it would add to the efficiency of the work done in this department.

Compound fractures leave behind them an aftermath of septic sinuses and bone cavities; these will provide occupation and food for thought for a generation of surgeons. I am not convinced that we have yet found any royal road to success in the treatment of these cases, a subject more suitable for a general discussion by the society than for any ex cathedra statements from this chair.

Septic injuries to joints emphasised the extraordinary difficulty we have most of us always experienced in dealing with these cases, and also confirmed the already expressed suspicion that the conventional drainage of such a joint as the knee-joint was not always the surest road to success. In addition to an enormous legacy of stiff and deformed joints the war has left us a number of flail joints as the result of rather extensive excisions, and with these it is a difficult problem to know best how to deal.

Almost as plentiful as fractures were injuries to nerves, and a large amount of experience in dealing with these cases has been accumulated, although, unfortunately, it is not altogether in unison. Among the many subjects for discussion is the best method for bridging the gap, in the continuity of a nerve, too wide for suture of the divided ends. Nerve transplantation, or grafting, as it is often called, and double lateral implantation into a neighbouring nerve, have each their advocates and their critics. Some would even shorten the limb (in the upper extremity) by excision of a portion of bone in order to bring the nerve ends together, while others prefer to leave the nerve alone and to rely on transplanting unaffected muscles to do the work of those paralysed. I am personally in favour of nerve transplantation, using nerve-grafts of the same size as the injured nerves, and these can only be obtained from recently amputated limbs or from amputation stumps. The difficulty, however, in speaking with much authority on such a subject is increased by the length of time that must elapse before one can judge the results, and hitherto by one's inability to keep in touch with demobilised and scattered soldiers. I look forward in the future to an exhibition of results of the various methods of treatment some two or three years after the event, and I have no doubt that the experience gained in this war will do much to clarify our views on the solution of what has always been a difficult problem.

I am standing, however, on common ground when I impress on those of us who are responsible for medical education the importance of exacting from students an accurate knowledge of peripheral nerve distribution and of muscular function—points on which, speaking as an examiner, I am inclined to think sufficient emphasis has not hitherto been laid.

CONCLUSION.

I have touched lightly on a few of the surgical problems which have been ventilated and illuminated by the events of the last five years, and in doing so I have employed the time which I consider should be occupied by the president in introducing himself to the society, but I have scarcely dealt with a tithe of the subject. Plastic surgery, bone grafting, and the surgery of the vascular system each require a chapter to themselves, so extensively has our knowledge grown on these subjects. When one realises this and remembers that general medicine, hygiene, and tropical medicine have all also accumulated masses of new facts and experiences, it is justifiable to believe that we are on the threshold of a new epoch in medicine and that an enormous impetus will be given to the discussions of societies such as this, as this new material becomes digested and classified.

The war has left us a legacy of disease and disabilities; it has also given us a riper experience and a wider knowledge. It is for us to see that the Medical Society of London shows the same activity in the collection and distribution of this new knowledge as it has done for the past century and a half.

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(Continued at foot of next page.)

GAS POISONING.[1]

BY SIR WILMOT P. HERRINGHAM, K.C.M.G., C.B., M.D., F.R.C.P. LOND.,

PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL; LATE MAJOR-GENERAL, A.M.S.

ON April 23rd, 1915, Bowlby and I were at Bailleul when a rumour reached us that something extraordinary had happened in the north. We drove at once to Poperinghe and learnt that the French Colonial Corps that held the line to our left from somewhere about Langemarck to Dixmude, where they joined the Belgians, had retreated the previous night, part of them through Poperinghe itself. We drove out to Vlamertinghe, where we found a Canadian F.A. and passed on the way the Northumbrian division going up. One battalion were playing football by the side of the road. At Vlamertinghe we could get no certain news except that the French had fled, and that the Canadians had met the advancing Germans about Pilkem and had held them there. But in the field ambulance I found three Algerian soldiers from whom I made out that the Germans had pumped some fluid out of pipes, had set light to it, and that a dense cloud of some kind had come down upon them which choked them. While we were there a man was brought in whose clothes had a curious smell, and in about five minutes every man in the room had to go out into the open air because our eyes watered so that we could not see. That was my first introduction to Cl and to the tear gas, xylyl bromide.

I need not remind you how the retreat of the French Colonial troops let the Germans in on our left, and eventually obliged us to retire on the Ypres salient, nor how terribly we suffered in consequence. It was about three days later that the same thing happened to our own troops. It was a little lower down the line and the cases were brought in to Bailleul. After that attacks were repeated all through the summer, but as means of protection improved had much less result.

The gas from April to the autumn was Cl. During the winter phosgene began to be used, and in 1916 it was sent over in shells which exploded differently from H.E. shells and could easily be distinguished from them until the enemy began to mix them in a bombardment. We were the first to send over the gas in projectors, which enabled large quantities to be concentrated on a small area and destroyed a great many Germans.

The action of these two gases was much the same. When I first saw the cases in April and found that they turned blue quite early, and, secondly, that they could not be made red again by oxygen, I thought that the hæmoglobin must be in some way changed into methæmoglobin. I had no experience of cyanosis from reduced Hgb which could not be removed by oxygen. However, Macnee and Dr. Haldane both showed that there was nothing but reduced Hgb in the blood.

The men were in great distress, breathing very rapidly, coughing continually, bringing up a yellow, thin, watery frothy fluid, and occasionally vomiting. The cyanosis persisted in spite of oxygen inhalation given as we then gave it, and eventually a large number—10 per cent. of all brought in—died of suffocation.

We gradually recognised three classes. (*a*) The severest of all, which were either collapsed from the first or became collapsed after a day or two. When collapse was present the colour was an ashy grey, the breathing was rapid and shallow, and the pulse was very small. These cases died rapidly. (*b*) Those which were severely affected, but were purple in colour and had a full though rapid pulse. Some of these became progressively worse and eventually became collapsed and grey, and then died. Others, if carefully treated, recovered. (*c*) Slighter cases which showed little cyanosis or none, and only had a slight cough.

Post-mortem examination showed laryngitis, enormous œdema of lungs, emphysema on edge of lung, and air under pleura.

Haldane and other experimenters in England explained the whole course of events, and the various degrees of severity, as all due to but one cause, the want of oxygen in the blood due to the wall of œdema interposed between the air and the blood-vessels. It seemed to me probable that there was also, in those cases which collapsed at once, some other more direct action on the heart.

We rapidly learnt also that exertion, sometimes even very slight exertion, made the patients worse. Thus men who had been comfortable while lying became rapidly worse and sometimes died suddenly if they walked or sat about. The extra amount of oxygen needed in the exertion could not be supplied, and the results showed at once.

At first our treatment consisted in oxygen inefficiently administered and stimulant expectorants, almost always amm. carb. The relief produced by natural vomiting led us to give emetics. But we soon found that these exhausted the patient more than they relieved him. Atropin was tried with the idea that it would diminish the effusion of fluid, but it had no effect.

There was considerable controversy over the effect of bleeding. It was reported to have been of good effect, and in especial in a batch of 100 Seaforths, who were gassed on their way down from the front line in front of Arras. But it takes many clinical observations to establish any rule of treatment, and meanwhile the experiments in England were opposed to bleeding. I urged it always, but it was not till a second series of experiments showed that bleeding was of use that I could get it adopted. It was of no use for cases of collapse, and, indeed, made them worse, and it was not needed for slight cases. It was of use in the cases of cyanosis with a full pulse.

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[1] Introductory remarks to a debate at the Royal Society of Medicine, War Section, held on Feb. 9th.

(Continued from previous page.)

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But the main remedy was undoubtedly oxygen. At first we gave it as we had given it to cases of pneumonia at home. This was of little use; we moulded masks out of gutta and celluloid, and gradually gave the gas with less waste and more continuously, and to several at a time by means of apparatus made out of petrol tins and gas pipes.

But gradually we received supplies of Haldane's apparatus, which was fixed straight on to the cylinder of oxygen, and contained (1) a transformer, reducing the pressure to moderate limits, (2) a distributer by which four patients could be fed at a time, and the number of litres per minute given to each checked. This, when earnestly and faithfully employed, was very efficacious. I have seen men in whom the stoppage of oxygen for any five minutes during the first 48 hours turned them blue again, eventually recover.

After the war was over and I had come home I learnt that a chemist employed in some industry in the north who was in the habit of going to Germany periodically had in 1909 come upon a party of soldiers evidently experimenting with some poisonous gas on a herd of sheep, many of which were dying or dead. He was warned off so quickly that he had no opportunity to see any details, and thought no more of it.

Our people were quite unprepared for anything of the kind. It created a great panic at headquarters, and it both frightened and at the same time exasperated the soldiers. For some time after that we had frequent alarms that some new method was contemplated, and, among others, the oddest was the news that "quebracho" was to be employed. There was nothing to be made of quebracho in any books available, and it did not seem likely to be dangerous, but it was firmly believed in for some time.

The authorities, at the head of whom was Colonel Cummins, immediately set to work to devise protection. The flannel rags were succeeded by respirators chemically treated, and then by cloth helmets, which were improved as time went on. But it was not till the autumn that these could be provided in sufficient numbers. A plant was set up in France for renewing the chemical soaking, but the chief weakness of the helmets was the gelatin or talc eye-piece, which was often broken and thus made the helmet useless. Ultimately, about two years later, the helmet was replaced by the box respirator, which was a very efficient protector.

On the night of July 13th, 1917, the Germans for the first time employed di-chlor-ethyl-sulphide, or mustard gas, on the front north of Ypres, and a fortnight later in the Nieuport sector. In each case between 3000 and 4000 casualties occurred. I was with G.H.Q. at Hesdin at the time, but got to the Proven area where the first set of cases were admitted a day or two later, saw a large number of cases and a few post-mortems. In a field ambulance north of Furnes I saw a large number of the second batch while they were still coming in.

They were of a totally different character from the earlier cases of Cl or phosgene poisoning. It had three main actions: the first causing violent conjunctivitis with swelling of the lids; another scorching the whole of the air-passages so far as it penetrated; and the third inflaming the skin, and producing, even without previous inflammation, large areas of brown pigmentation. It was said by some that the parts of the skin chiefly affected were those in which there are sebaceous glands.

The effect upon the eyes was such that the men were practically blinded. In the hospitals you might see what Mr. Sargent so well represents in his picture now in the Academy, strings of men led by one who could see, groping their way about the camp. The skin where affected was of a fiery red, and many men were sent in as cases of scarlatina. In some cases the burns were so severe as to cause death. They were worst on the buttocks and about the genitals where the skin was sweaty. The most dangerous lesion was in the air-passages. The nose, fauces, larynx, and trachea were often so badly scorched that the mucous membrane sloughed. Besides causing great pain this necessarily converted these tracts into raw suppurating surfaces infected with many septic organisms which were inhaled into the lungs and set up a dangerous septic broncho-pneumonia. All these appearances were often seen post mortem, and I made one post-mortem on a man who had died within 12 hours in which the small bronchi and bronchioles were plugged with a muco-fibrinous clot which was pulled out like a cast of the passages.

Di-chlor-ethyl-sulphide was studied by Victor Meyer, who had published an account of it in the "eighties." It had been suggested to our War Council as a weapon in 1916, but had been refused. Now when we saw what effects it could produce G.H.Q. asked for some as soon as it could be made. We did not, however, discover the way to make it for two years, and it was not until our last advance had begun that we had it in any sufficient quantity.

We made out that its fatality was about 3 per cent. But its military effect was not to be measured by this. Its stable character and its weight caused it to cling to ground on which it had been thrown, and not only did it oblige the evacuation of a position, but it also rendered that position untenable sometimes for a fortnight. The stuff soaked through leggings and even through the upper parts of boots, so that though the box respirators preserved the air-passages and the eyes they could not protect the rest of the body from severe burns. With lesions of that character it is rather curious that the kidneys did not, as far as I know, suffer.

A certain number of cases of laryngitis with very persistent hoarseness were seen later, in which the men said that they had been in the neighbourhood of gas though without feeling any effects at the time. It seemed probable that a very slight exposure to the vapour had produced a chronic laryngitis.

The treatment of the eyes was chiefly by means of alkaline douches and castor oil drops. The throat and larynx were eased by inhalation of an antiseptic anodyne containing tr. iodi., menthol, and creosote in rectified spirit, with which a respirator was kept wet. There was no doubt of its effect, as judged by the amount of coughing in a ward where it was used. The skin was very difficult and very painful to treat. Wet alkaline dressings were usually preferred. In France, at any rate at the front, we saw only the immediate effects. Interesting sequelæ were found to occur, of which others can speak with greater authority than I.

A question which is of importance remains. Is it likely that such a weapon once employed can in future be ruled out of war? There are examples—e.g., explosive bullets against infantry—but that is, so far as I know, the only successful attempt. It is probable that any belligerent will be obliged in future to pursue researches in this direction, and to provide himself with the most dangerous gases at his command.

SOME ASPECTS OF THE TUBERCULOSIS PROBLEM.[1]

BY THOMAS D. LISTER, C.B.E., M.D. LOND.,
M.R.C.P. LOND., F.R.C.S. ENG.,
PHYSICIAN TO THE MOUNT VERNON HOSPITAL FOR CONSUMPTION.

WHEN addressing an audience on Industrial Tuberculosis at Merthyr in February, 1911, I said that "the lessons of the sanatorium must be made the basis of prevention. The real warfare must be carried on in the houses and the workshops of the people. The people must realise that it was themselves who were in the fighting line." These conclusions were largely founded on a paper that I had read at the Second Congress of the Industrial Diseases that was held in Brussels in 1910 and which was subsequently published in THE LANCET[2] of that year.

It is interesting to me to realise that there has been an evolution of ideas, and indeed a definite movement, in the direction I then indicated. Unfortunately there has been also an expansion of administrative efforts on what must be regarded as stereotyped lines. The report of the Departmental Committee on Tuberculosis, which was presided over by the then Mr. Waldorf Astor and the activities of National Insurance are familiar to most of us. Everyone realises also the great social changes that were brought about by placing an enormous army in the field and supplying its needs by munition work at home. The late Local Government Board was somewhat disturbed from its usual complacency by the discovery that tuberculosis had rapidly increased during the war. A laborious attempt at an explanation was made in a special L.G.B. report, which I really attempted to understand and have referred to in a paper on the Value and Limitations of Sanatorium Treatment published in THE LANCET of Nov. 17th, 1917 (p. 739).

In a very clearly written essay in the *Universal Medical Record* of November, 1912, two points of view were discussed, those of Robin and Calmette. Robin seems to suggest that the important thing in tuberculosis is the terrain, and that we cannot directly attack the bacillus. Calmette denies that there is a particular soil, and thinks that there is neither natural immunity from, nor predisposition to, infection by Koch's bacillus.

Sanarelli, of Bologna, wrote in 1910, at the Rome Congress on Tuberculosis, of the biological evolution of the disease, and pointed out how urbanisation was not only associated with a high incidence of tubercle, but that it was only where countries were urbanised that there had been during the last 60 years a progressive fall in the death-rate from tuberculosis.

There is no necessity for me to remind you that infection is practically universal among those who live in towns, nor for me to repeat the remark so often used in a merely sensational manner that 10 per cent. of all deaths occur from tuberculosis. We are getting tired of the constant reiteration of the fact that 60,000 deaths occur annually from consumption and other forms of tuberculosis in the United Kingdom. I will not on this occasion recapitulate the evidence as to general infection which has been so often demonstrated by post-mortem evidence and by clinical tests.

But having realised the facts to which I have briefly referred I tried to coördinate them in my own mind, and the first and chief puzzle that occurs to me is the difficulty of understanding why 90 per cent. of a population infected by tubercle do not succumb to it.

Problems of Research.

The question is whether we should try to prevent infection among the whole mass of the population or should we endeavour to prevent the occurrence of death among the small minority that succumb? If nothing less than a stamping out of consumption by the elimination of the tubercle bacilli is to content us it seems that we are setting ourselves rather a hopeless task. If, on the other hand, we desire to bring about its harmlessness there are two great problems for research which immediately suggest themselves. Firstly, why is the tubercle bacillus a comparatively harmless pest to the great majority of the population? And, secondly, why is it fatal to a minority of the population, though that minority is so enormous amongst us as to render the disease the terrible scourge it is?

This is, I think a fairly obvious and logical statement of the problem of tuberculosis, but there is no single immediate line of activity to suggest either in administration or in research which would prove the royal road to success.

If the pathologists are right in demonstrating that all men are susceptible to infection, but that only the minority are capable of fatal infection, then we have to deal with at least four factors. In regard to those who are capable of infection but do not succumb, we have to consider whether this power to overcome infection arises from something definite within themselves or something which comes from the happy external circumstances of living in which they may be placed. In regard to those who succumb when infected a similar question must arise. Is their liability to death dependent on some inherent quality in themselves or upon unhappy external circumstances?

I think we can disregard the consideration of the possibility of preventing the existence of the tubercle bacillus. It is, I conclude, impossible to disinfect the world, though astronomers promise us a complete sterilisation finally. As a practical problem we have only to consider how we should diminish the morbidity and mortality arising from the bacillus. Let us not forget that wherever civilisation has carried the tubercle bacillus and other of its advantages into populations previously not known to be affected, it has been more powerful than the weapons of war in destroying those populations. Let us remember also with Sanarelli that the fall in the death-rate has occurred in the most highly urbanised countries, which are presumably, therefore, also the most civilised. Alongside our puny efforts of national campaigns against tuberculosis which are being made in nearly every country, infinitely greater forces are at work, killing off the weaker strains of the human organism, directed by the stern rules of natural evolution. It is no doubt right from a merely human point of view for any administrative body or department that has the buzz of its machinery always in its ears, to claim that the whole of the effects which it observes are due to that machinery. My own feeling in regard to the matter of prevention is that the effect of such national campaigns, however highly organised and well meaning they may be, is at present of about as much use as the fly on the coach wheel who thinks what a dust he is making.

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[1] Being the substance of an address before the Medical Society of Cardiff.

[2] THE LANCET, 1910, ii., 1122.

The Assistance of Natural Cure.

In the endeavour to assist Nature's cure of tuberculosis we must in all humility limit our aspirations to the endeavour to assist her methods, and at the same time try to wrest from her some of the secrets of those methods, which may be hidden in the replies to the four bald questions that I have just stated—namely, what are the physiological and environmental factors of immunity and vulnerability respectively. In other words, the first step in any government campaign against tuberculosis should be well-directed research. For nearly 40 years we have been doing homage to the bacillus by creating ingenious ambulances and all the machinery of clearing stations and hospitals while doing little or nothing to investigate the real problems of the disease. The discovery of the bacillus was such an outstanding accomplishment that we have become obsessed by it and have forgotten a good deal of the natural history of its relationship to human progress and social evolution. Nearly all our machinery has been directed to the recognition of the disease, to its appropriate therapeutics according to the individual requirements of our cases, and to the attempt to prevent infection and re-infection.

Recent correspondence in the *British Medical Journal* has supplied an object-lesson in erroneous methods. Dr. B. G. M. Baskett, in view of the close correspondence between the fall in the death-rate from tubercle and the decrease of poverty, tried to prove that the mortality was related to the real value of wages. Subsequent writers side-tracked the discussion. Dr. Baskett was right in insisting upon the relationship between the tubercle mortality and environmental factors, of which poverty may be taken as one measure. But it is not the only measure. The comparative study of industrial mortality would have shown him that there are some other points to be considered than the mere purchasing power of wages.

Local Problems.

By the courtesy of Dr. E. Walford, medical officer of health, I have been enabled to read the annual report on the city of Cardiff for 1918 and the seventh annual report of the King Edward VII. Welsh National Memorial Association. I do not know the conditions of living in the various municipal wards of the city, but I notice that the death-rate from phthisis per 1000 persons living varied in 1918 from 0·94 in Roath Ward to 5·11 in South Ward, the figure for the whole city being 1·77. This disproportionate difference between two extreme figures leads me to the conclusion that the conditions of life generally in Roath Ward are more satisfactory than those in South Ward.

I also notice that the death-rate from tubercle in 1918 for the whole city is nearly 70 per cent. greater than it was in 1910, and that in South Ward it is more than twice as great. I notice also that from 1915 to 1918 the death-rate in South Ward has trebled, while in Roath Ward it has scarcely increased. I know nothing of the wage conditions either in Roath Ward or in South Ward, but I would like these and many other points of difference between the two wards to be investigated. I would like to know what the occupations and habits are of the people in these widely differing tuberculosis areas. I should like the physical standards measured. I would like to know whether wages have increased in the South Ward during these last years, and whether the people themselves show any understanding of how their increase in wages, if any, should be spent to hygienic advantage. Has there been an invasion of unhealthy people? Has tuberculosis been better recognised in the South Ward?

The statistics of the report also show that the death-rate from phthisis is 50 per cent. greater even in 1918 than the average rate for ten years from 1908 to 1917, but it was increasing throughout the duration of the war. This is a common experience of the whole country, and Cardiff, although one has good reason to believe that it has not been lacking in prosperity during these past five years, shows even a greater increase in its tuberculosis mortality than the average of the country. But as I have pointed out, the increased mortality is disproportionately borne by certain wards of the city. I would like to know why. In other words, these figures, like all the figures relating to tuberculosis, show that there is an intimate association between a heavy phthisis mortality and some social conditions. This is a question of policy and not of politics.

Measures for Prevention and Treatment are not Identical.

Fresh suggestions are continually made for increasing the expenditure of public money on treatment. When sanatorium methods apparently fail to secure any permanent benefit for cases of industrial tuberculosis, we suggest increased segregation of the advanced cases, farm colonies for the chronic cases, after-care committees, and especially more officials, both lay and medical. No wonder the medical officer of health of Edinburgh, the place of origin of the tuberculosis dispensary system, complained early in 1917 that our methods are upside down. For years past I have been pointing this out so far as tuberculosis is concerned.

When a patient has been discharged from a sanatorium with his disease arrested we know that something called resistance has prevented the further extension of his illness, and that he has obtained this something under sanatorium conditions. We know also, however, that before he went into the sanatorium he must have been under different conditions where his resistance was broken down. We send our successes back to these same adverse conditions, and the public complains that the sanatorium is no good because they relapse.

It is very interesting to me, who have for over ten years recognised this anomaly, to see that the idea has gradually dawned on our publicists that we might as well try to provide such conditions of life and labour as would render the expensive sanatorium unnecessary. Not only would such conditions prevent a large amount of tuberculosis, but also many of the other evils associated with bad surroundings. The medical practitioner has always been in advance of the hygienist in this matter. Whenever I have discussed the problem of tuberculosis with individual practitioners they have always said to me that it is a disease depending on social conditions, which on the one hand destroy resistance, and on the other favour infection.

It is to the social conditions that research should in the first place be directed. We must no longer be misled by such shibboleths as a phrase in a Local Government Board Report which states that measures for treatment and prevention are largely identical. We must, on the other hand, insist that prevention is an entirely different problem from treatment, and requires an entirely different machine. We cannot "treat" until we have failed to "prevent."

Some small attempts have already been made in this direction during the war, and a report published in 1915 by the Medical Research Committee on "The Incidence of Phthisis in the Boot and Shoe Industry" was a move in the right direction. I went much further in a lecture given at the Institute of Hygiene in April, 1914, on "Consumption and its Prevention." I claimed then, and I still say, that systematic research on uniform lines, not only in regard to occupation but in regard to all the functions of communal life in any group of the population showing a high tuberculosis mortality, is the proper method of approach to the problem. It must not be supposed that, though I recognise the need for sociological research, I ignore the necessity for the fullest pathological investigation of the clinical problems of tuberculosis. Let us turn for a moment to the last report of the Welsh National Memorial Association. It deals almost entirely with questions and statistics of treatment, though I am glad to say that it reiterates its objects as including the prevention and eradication of tuberculosis in Wales, and, in particular, the provision of treatment. The special report appended on the medical policy of the association is, however, of interest. The governors of the association decided in July, 1917, to ask the Council to consider the steps which should be taken to develop the preventive side of the work. The special report is in two sections, eleven pages still dealing with treatment and only seven with prevention. It is probably familiar to those practising in Wales, and I need not therefore recapitulate it. Briefly, the section dealing with treatment points out that medical practitioners, including school medical officers and others, are invited to refer to the tuberculosis officer cases, both diagnosed and suspected. Clinical diagnosis is said to be the most important duty of the tuberculosis officer. Treatment is considered under various headings and many groups of patients are defined. The aid given by the subordinate officers, such as health visitors and district nurses, is also indicated, and a considerable space is allotted to institutional methods.

Coöperation of the General Practitioner.

But I do not see in Wales, any more than in England, that there is much direct encouragement and support to the practitioner. I should surmise that much more use could be made of practitioners in Wales as in England if their time and services were adequately remunerated. I consider that the general practitioner should be the backbone of all measures undertaken for the diagnosis and treatment of tuberculosis, as he should be of all clinical work, and it is a mistaken policy which limits the public recognition of the power to make an early diagnosis to too few individuals. The interest of the practitioner in tuberculosis is liable to be restricted to the comparatively advanced cases, and distrust of their medical attendants is encouraged amongst the public. What seems to me desirable in every public institution where the tuberculosis officer is in attendance, whether dispensary or otherwise, is that the local practitioner should be asked to coöperate as a co-director and be adequately paid for his time and services. The private surgery and the absence of trained helpers render it difficult for the practitioner to give the same services as he could professionally well give when working as an associate of the tuberculosis officer so far as clinical work is concerned. Provided that proper remuneration were offered, there seems little reason to fear that there would not be sufficient doctors to make an adequate rota in the week's work. The advantage to the public would be the keener interest that men would acquire in the early recognition of the various manifestations of tuberculosis. The tuberculosis officer would be rapidly relieved of a great deal of what is the simplest kind of repetition work. In England, perhaps this does not apply to Wales, the tuberculosis officer has little time for anything but clinical work. Apart from the examination of sputa for the bacillus, he is unable to direct the channels of pathological investigation or to scrutinise minutely the population under his care. Under some system of coöperation as I have suggested the skill necessary for the recognition and classification of the various groups of cases would be rapidly acquired by the practitioner. The tuberculosis officer would be enabled to devote some of his time, which is at present largely wasted, to the important problems of prevention. I know the amount of training that many tuberculosis officers have received before they were appointed. There is no doubt in my mind that equal clinical skill is easily within the reach of most general practitioners who are desirous of acquiring it. Moreover, all general practitioners have that experience of general diseases which is frequently lacking in the young "expert."

The Interpretation of Technical Terms.

When I turn to that section of the special report which deals with the problem of prevention I am struck with the completeness with which the problem is identified as being merely one of infection by the bacillus. Even the section on research suggests very little except work on the virulence and infectivity of the bacillus. There are other problems for the pathologist who would escape from routine methods, such as the antithetic relationship of gout and tuberculosis, if it exists, and the problem of the endocrine secretions and the modern revival of the doctrines of "diathesis" and "constitution." What do these things really mean?

We are a profession that loves to disguise its appalling ignorance. Lawyers, who seem to be our natural enemies, often taunt us with our smug substitution of a polysyllabic word of doubtful etymology for what might be expressed in simple English. Many a patient is comforted by being told that they are suffering from pleurodynia when they complain of a pain in the chest. We speak of a strong or a weak "constitution" and only occasionally wonder what we mean by it. The short-sightedness with which Parliament framed the Insurance Act has tended to perpetuate symptomatic treatment and the bottle of medicine. I believe Sir Clifford Allbutt has pointed this out on many occasions.

I would like to refer very briefly to some of the suggestions in Sir George Newman's Outline of Preventive Medicine as to the question under discussion. He says on p. 74, when dealing with this subject, "frankly many authorities directly responsible for dealing with this disease are at present merely playing with it," and sums up this particular section by saying—

> "It is obvious that much remains to be done. The standard of diagnosis in tuberculosis, the scope and duties of the tuberculosis officer and tuberculosis nurse, the managemant of residential institutions, the education of the patient and his after-care, the relation of the disease to industry and tuberculous milk, the investigation of local high incidence, the subject of non-pulmonary and surgical tuberculosis—all these questions call for careful attention and some of them for immediate action."

On pp. 96 to 98 a series of questions are postulated for diseases in general, which it would take the whole army of medical men in this country the whole of their time to investigate supposing even that they were adequately trained and equipped. I do not say that it is probable, but it is perhaps possible that greater good could be derived by so employing the whole of the profession than by treating the symptoms of disease by pills and potions. It is certainly impracticable, and though the lasting good to posterity would be incalculable, yet those of us who have the misfortune to be mere clinicians realise that the present generation would suffer even more than they do at present from the drug vendor.

If, however, such questions were answered even for only one great group of diseases—namely, those we recognise as tuberculosis—a great many of the other questions relating to allied affections depending on lack of hygiene would also be solved. The questions are based on the evolution in ideas which has occurred during the last ten years.

It is always dangerous ground to tread upon when one arrives at conclusions that the methods in vogue are not the last word in practice. Those who are cogs in the administrative wheels cannot conceive that they should ever be in any different relation to their work than the relation in which they stand to the neighbouring wheel. Having set up an engine, we are particularly liable to continue its use even when its inefficiency has been demonstrated.

I would like to say here that I do not for a moment claim that my own views have been any more than an early part of the general evolution that is taking place in regard to tuberculosis. But Sir George Newman shows throughout the greater part of this Memorandum such a large grasp and imagination that we may almost wonder at its being the outcome of an official mind.

I would like to quote one remark on p. 101 of the report, dealing with an adequate medical service. He says that the "foundation of the medical service is the medical practitioner, he is its pivot, its anchor, and its instrument."

The Improvement of Conditions for the General Practitioner.

But he goes on to talk about the necessity of improving the facilities of the practitioner for post-graduate instruction, for improving facilities for practising his profession, and even suggests that—

> "He should be provided with the means to help himself in his struggle against desperate, indeed almost hopeless, conditions—without assistance, guidance, or coöperation which is readily available, without laboratory facilities, without nurses, without ample clinical and hospital accommodation. All the State appears to have done is to take away his patients—tuberculous, school children, venereal disease—instead of strengthening his position, equipment, and capacity to deal with them himself."

In concluding his remarks on the general practitioner he quotes Sir Bertrand Dawson's statement that—

> "The general practitioner's outlook needs to be more comprehensive. In him should be realised the correlation of preventive and curative medicine. He should concern himself with the Ministry of Health as well as disease; he must be brought into the condition of a rightful leader and skilled adviser in all that appertains to the social service and welfare of his district. In matters of health he should be the father of his people."

I think we all know where the difficulties lie in one respect. I think the medical practitioner is rather tired of getting good advice. If I am right in my surmise as to the different conditions that prevail in the South Ward of Cardiff from those which prevail in other wards with a much smaller tuberculosis mortality, the practitioner in South Ward would be glad to see some of these facilities. I am not quite sure what is meant by facilities, but I do not see how it is possible under existing conditions of general practice for the practitioners to make use of these facilities, post-graduate study, clinics, tuberculosis officers, and all the rest of it unless he is made a willing, and that means adequately paid, member of the medical service. The remedy should lie in his own hands, but the very conditions under which he works seem too often to have destroyed his initiative, and rendered him an object of criticism for those who say falsely that his only natural desire is his personal benefit.

Nevertheless at a recent conference of Panel Committees in England the representatives of the panel doctors themselves turned down the discussion of "practitioners' clinics." Under the present conditions of general practice they saw no use in considering the question. In other words, although they claim justly that there should be an increase in their capitation fee, the competitive needs of themselves and families prevailed against the possible benefit that could be derived from combined practice, and they have created the impression that they do not desire to give a better service.

Conclusion.

Some of you may remember a letter which THE LANCET and the *Times* published at length, written just before the Insurance Act came into force, at the end of negotiations which then took place between the profession and the Government. I then suggested a similar coördination in clinics, which has now been re-discovered as "team-work." This now has the approval of not only leading practitioners but also the chief medical officer of the Ministry of Health.

But neither Sir Bertrand Dawson nor Sir George Newman can expect general practitioners to regard this necessity as one they are willing to coöperate in providing until some guarantee is given. The medical practitioner requires a little more invitation and a little less telling. He wants less depreciation and more appreciation. His part in solving the problem of tuberculosis should be that of diagnosis and treatment. He should be the willing co-director of all the agencies established to enable him to carry out these functions. Medical research should involve much more than staining sputum, and there is enough work in tuberculosis alone, if all its aspects are to be studied, to keep the Medical Research Committee quiet and busy for some time to come. But if they were considered a great many other questions would cease to require solution.

These two points I would like specially to emphasise. Tubercle is the index disease of social conditions, and the severest test of our clinical skill, and can only be approached successfully when we begin to understand something of the causes of health among the infected. It is not merely by the diagnosis and treatment of those who are unhealthy among the infected that we shall ever solve this problem.

ABSCESS OF THE LIVER

AMONG BRITISH EASTERN TROOPS.[1]

By A. L. CANDLER, F.R.C.S. Eng., M.B., B.S. Lond.,
ASSISTANT SURGEON, ROYAL DEVON AND EXETER HOSPITAL.

THERE are several severe tropical diseases to which those who have been on service in the East are subject after return to this country. As surgical specialist to British general hospitals in Salonica, Mesopotamia, and the Punjab I have had an opportunity of learning about, and dealing with, inflammation and abscess of the liver due to infection by *Entamœba histolytica*, and therefore venture to deal with this disease in the hope that my experience may be useful to others who have not hitherto had the opportunity of meeting such disease, but who may do so among demobilised troops.

Inflammation or abscess of the liver occurs not infrequently after the bowel has been infected by the *Entamœba histolytica*, and is therefore a late complication of amœbic dysentery, but it is certain that patients suffer from amœbic inflammation and abscess of the liver who have not had diarrhœa or any symptoms which made them suspect that their bowels were infected by the amœba. In 3 cases of hepatitis and 13 of tropical abscess of the liver under my care only 3 had knowledge of having had diarrhœa or dysentery; the patients were British and could be credited with intelligence. Osler mentions that in 27 cases 5 had no dysentery, 2 had normal mucosa, and 2 had *old* scars in the large bowel. Rogers mentions 18 per cent. of cases without history of dysentery. In 1 fatal case under my care there was no lesion of the bowel except one small healing insignificant ulcer in the ascending colon. In my other fatal case the bowel appeared normal post mortem. In the fæces from 12 of my cases amœbæ were found by the pathologist in 3 only. It therefore appears that patients who have had an amœbic infection so slight that it did not cause diarrhœa or dysentery, and was therefore not treated, are more prone to infection of the liver than those whose infection caused diarrhœa, dysentery, diagnosis, and treatment. This point is obviously important in considering the history for diagnosis.

In amœbic dysentery the large bowel is ulcerated, with undermining of the mucous membrane, and it is in the walls of the ulcer that the amœbæ are found most plentifully. It is stated (Osler) that amœbæ have been found in the portal capillaries, and this channel may be their route to the liver. On arrival they may cause either a general hepatitis or one or more abscesses. Such an abscess has an inner necrotic wall surrounded by an area with increased connective-tissue cells squashing the liver cells, while outside this is an area of hyperæmia. It is remarkable that there is no great local leucocytosis unless the abscess is secondarily infected with pyogenic organisms.

The pus is usually greenish-yellow and slimy, and not often pinkish according to the objectionable description "anchovy sauce"; the pus is sterile to ordinary organisms, this point clearly differentiating the abscess from one caused by the more ordinary Western infections. It is difficult to find the amœbæ in this pus, but they are more easily found in the drainage-tube later, the explanation being that the tube touches the abscess wall in which the amœbæ are more plentiful and that they pass direct to the tube.

The abscess usually starts deep and nearly always in the right lobe. I have had no experience of multiple small abscesses; it is far commoner for the abscess to be solitary. It enlarges, and in so doing destroys liver substance and encroaches either (1) towards the ribs; or (2) beneath the diaphragm, through which it may perforate into the lung or pleural cavity; or (3) towards the epigastrium, bursting through the abdominal wall into the peritoneal cavity or a hollow viscus. I have seen a small Arab girl in whom a hepatic abscess had burst through her right rectus abdominis. Osler mentions nine rupturing into lung, three into pleura, and three into vena cava. In encroaching towards ribs or diaphragm it causes local dry peritonitis or pleurisy and therefore pain, diminution in movement of the diaphragm, and congestion of the base of the lung; it is important to note this sequence of events, for they are liable to lead to false diagnosis in cases seen late in the disease; in pushing the diaphragm upwards and outwards it diminishes the costo-diaphragmatic space, thereby making the surgical approach to the cavity much easier, and lessening risk to the patient's pleural cavity.

Diagnosis.

Diagnosis is difficult. Sir Leonard Rogers states that in 30 European cases 50 per cent. had had fever over one month before the abscess was found, and 34 per cent. between two and four weeks. The onset is insidious. There may be a history of diarrhœa or dysentery, but in my experience, as already stated, there is no such history in the majority of cases; in fact, there is often one of constipation. Similarly, amœbæ are often not found in the fæces. The general condition of the patient varies with the size and chronicity of the abscess; patients who have been ill two or three weeks are slightly sallow without jaundice, thin in the face and drawn in expression, with some anæmia; content to lie still but having pain on movement of the trunk, situated usually over the right lobe of the liver. In the early stages there is no pain at all. If there is perihepatitis or pleurisy pain is present when a deep breath is taken.

The pulse-rate is about 100 to 110, or even lower, the fever being continuous but not very high—101° to 102° F. But both pulse-rate and temperature may be lower than the figures given, and yet a considerable amount of pus present with destruction of liver substance. The temperature of one patient is of interest, as he had first a right epigastric abscess and later one high up in the right lobe; the latter contained about 10 ounces of pus, and yet previous to the second operation he was apparently improving according to his chart alone; the chart gave a false impression—he was emaciated, anæmic, and very ill, with half a pint of pus in his liver, yet during the ten days previous to operation his pulse-rate rarely reached 100, and his temperature was not above 101°.

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[1] A paper read before the Devon and Exeter Medico-Chirurgical Society on Dec. 18th, 1919.

An abscess coming downwards to the epigastrium is fairly easy to diagnose, as the local tender enlargement can be felt and easily approached. Difficulty occurs when the abscess is in its more common situation beneath the ribs and diaphragm. There is often some slight œdema or bulging of the chest wall over the abscess; the liver may be felt slightly enlarged beneath the costal margin, and its upper level of dullness may be raised; one very characteristic feature is a dome-like rise in the area of the liver dullness below the axilla. I suggest that this is due to the fact that the diaphragmatic muscle is longer at the side than in front or behind as it passes from thoracic wall to three-lobed central tendon and that the muscle is stretched more easily than the central tendon, allowing liver to expand in the side to the costal wall, but not in front or behind. Tenderness on pressure over the region of the abscess is present, and its maximum point is a guide to the position of the abscess.

Limitation in movement and upward bulging of the diaphragm can be seen by X ray, and such examination is a great help in diagnosis, but I have not seen an abscess *in* the liver photographed. If an abscess be low down in the liver the diaphragm is not limited in movement, and I feel sure that one of the serious complications and also difficulties in diagnosis is that limitation of movements of the diaphragm and lower ribs, due to inflamed pleura, peritoneum, and liver, causes congestion of the base of the right lung, which easily becomes infected with pyogenic organisms. This means increase of fever, pulse-rate, and leucocytosis, while the inflamed lung is liable to disguise inflamed liver below and beneath it. This seems so important that a summary of such a case is worth putting forward.

A man obviously suffering from some severe disease was in one of my wards for five weeks, and was seen by the consulting surgeon and physician to the Forces and by other medical officers; he died with a large abscess in each lobe of his liver. I had explored his liver by multiple punctures on two occasions under general anæsthetic. He had severe inflammation of the base of the right lung and later of the left lung, coughed up streptococci and pneumococci, and had a leucocytosis of 21,000 with polymorphonuclear increase. As puncture failed to find pus in his liver he was considered to be suffering only from infection of lungs. Post mortem his liver was a shell containing two large abscesses without any enlargement of liver downwards or upwards, but with marked inflamed adhesions to diaphragm and peritoneum and severe inflammation of bases of lungs and bronchi.

I feel that this man should have been diagnosed, but the "red herring" of inflammation of the lung and failure to find pus by exploring punctures put me off the track.

Leucocytosis is uncertain in an uncomplicated tropical abscess of liver; it can be as low as 4700 and as high as 28,000; in my opinion the high leucocytosis is often due to inflammation of the base of the lung rather than to the abscess in the liver. It is also a remarkable fact that the wall of the abscess cavity is not crowded with leucocytes as in an infection by pyogenic organisms. The percentage of polymorphs is not increased, being 70 to 80 per cent., while lymphocytes are about 8 to 15 per cent.; the differential leucocyte count thus gives a further point distinguishing abscess due to amœbic infection from that due to pyogenic organisms, but this difference will not hold good i the lung is inflamed.

The ultimate diagnosis is the finding of pus, an this is searched for by puncture, preferably with long trocar and cannula, like Barker's lumba puncture needle, and under general anæsthesia Multiple punctures are often necessary, the needl being withdrawn to the skin before change o direction, otherwise the liver will be torn; a goo well-fitting syringe is necessary, and even wit these precautions it happens not infrequently tha pus is missed. I suggest that one reason is tha the liver will not collapse easily, and therefor suction is made against a vacuum; also the pus i mucoid and thick, and the explorer perhaps ha qualms about large veins in the liver. There ar remarkable cases of hepatitis where puncture have been made in search of pus in inflamed liver followed by rapid cure of liver and patient; on man with hepatitis recovered within 24 hour after puncture, his liver going back to normal size tenderness disappearing, and fever stopping.

But if it is strongly suspected that there is a abscess and puncture fails to find pus, in m opinion an epigastric incision should be made an the liver surface felt by the hand passed under th diaphragm. By this method I found an abscess i the liver near the middle line under the righ costal cartilages; it did not contain more tha 3 drachms of pus, and I had failed to find it b puncture, as one would expect in such a case. O another occasion I felt fine recent adhesion between the top of the liver and diaphragm I closed the epigastric incision and resected the ri just above the adhesions, draining an abscess containing 3 ounces of pus which I had failed to find by puncture. One is dealing with a severe disease difficult to diagnose, difficult to locate, and causing destruction of liver, and it is all-important to dea with it early. I therefore feel that an exploratory epigastric incision should be made early if emetine and puncture fail in a case where the disease is suspected.

Treatment.

The treatment of hepatitis due to amœbic infection is hypodermic injections of emetine, which rapidly cause the disappearance of pain, enlargement of liver, and fever. If they persist it is probable that an abscess is present. In Mesopotamia and India emetine hydrochloride was given hypodermically in 1-gr. doses daily, sometimes twice daily for the first few days. I heard that some hearts were damaged by too much emetine, but I saw none. It is said to be cumulative in effect and so the injections are discontinued after ten days and a further course of injections given later if necessary. Bismuth emetine iodide was given in pills for dysentery, but in my experience they caused nausea and vomiting, which did not happen with hypodermic injections of emetine hydrochloride: it is interesting to note that the pills were reported for a period not to cause nausea and vomiting until some enthusiast discovered the pills unchanged in their coats in the fæces.

If an abscess is present it must be drained either by epigastric or by costo-diaphragmatic route. Epigastric draining is usually easy and, provided that the peritoneal cavity is packed off before the abscess is opened, there is little risk of infecting the general peritoneal cavity. Cathcart's method of putting in the drainage-tube on the stretch is useful, as in expanding it closely fits the hole of entry into the liver. It is almost unnecessary to ay that as little damage as possible to liver and ts vessels is caused, blunt instruments being used. f drainage is made through the thoracic wall, ½ inches of rib are excised, as in operating or empyema; but before the posterior periosteum at the site of the excised rib is opened, deep catgut sutures are passed by a fully curved small needle, suturing diaphragmatic muscle to intercostal muscle above and below the area of rib excised; by this means the pleural cavity is shut off, and risk of pneumothorax or empyema is diminished; the diaphragm is usually so pushed towards the thoracic wall that the costo-diaphragmatic space is diminished, and it is easy to suture diaphragm to intercostal muscles, and also to incise the periosteum and the diaphragm without going through pleura in many cases. Two medium-sized tubes are better than one large one, as they allow of irrigation later without pressure.

Aspiration of the abscess has been advocated; when the abscess is found by puncture it is aspirated as far as possible, and then a solution of 20 gr. of quinine sulphate in 2 ounces of water are injected before the needle is withdrawn; I am told that if this is done it is probable that the abscess will be cured, but that it is uncertain and recurrence is more likely than after drainage.

After-treatment consists in the hypodermic injection of emetine and careful sterility in dressing; the pus is sterile to pyogenic organisms, and if the cavity becomes infected by them there will be prolonged discharge and sinus at any rate. I believe that the tubes should be removed as early as possible—that is, as soon as the slimy purulent discharge has ceased—usually within a fortnight to three weeks; it is the emetine which will ultimately kill the amœba, not the drainage, and if the tube is left in long the chances of secondary infection and persistent sinus are increased. I have seen liver abscesses drained by epigastric and by costal route heal within six weeks, but the tubes were removed early; others of my cases had to be evacuated and I do not know how long they took to heal, but in all cases the tubes had been removed and the patients observed for a few days before evacuation.

The pathologist, Captain C. C. Twort, examined the behaviour of active amœbæ in eusol and it is interesting to know that the amœbæ crawled and were active at first in ordinary eusol. After five minutes they were rounded and motility was slow; after half an hour they were still motile but feebly so. Therefore eusol does not kill the amœba, but only diminishes his desire to crawl. Motile bacteria quickly became immotile in the same eusol; it is advisable in after-treatment therefore to irrigate the cavity with a solution of quinine sulphate, 10 gr. to the ounce, after washing away the pus with saline or peroxide. In the after-treatment of a liver abscess the fæces should be examined for amœbæ, if these have been present earlier, as the patient is not cured of the disease if amœbæ are present in the fæces and a further course of emetine will be necessary.

Differential diagnosis mainly concerns malaria and the hepatitis accompanying gall-stones and typhoid. In malaria the finding of the parasite, enlargement of the spleen, and improvement with intramuscular injections of quinine bihydrochloride usually make matters clear, but in the East the patient may have both diseases.

In its early stage, before localising signs occur, an abscess of the liver may resemble typhoid, particularly when the leucocyte count is as low as 4700, as in one case; in more than one instance patients were observed for a week as doubtful typhoid before local signs of trouble in the liver occurred.

Prognosis depends on the time of diagnosis, treatment, and the amount of liver destroyed. It is astonishing how much liver can be destroyed and yet the patient recover; one patient had an abscess in his right lobe containing two pints of pus; another had at least one-third of his total liver substance destroyed by a gunshot wound and resulting suppuration; there was only a very slight liver shadow by X ray at the outer right third of his liver; he had an abscess from Poupart's ligament to scapula; he was emaciated and dangerously ill, but ultimately recovered sufficiently to be evacuated from Salonica to England, having put on a considerable amount of weight. In considering the prognosis, it must be remembered that a second abscess not uncommonly occurs months later, but I guess that this is less frequent since the introduction of efficient treatment with emetine.

Death-rate in this disease used to be very high; with the growth of pathology and surgery and the use of emetine the prognosis is greatly improved; in my small experience of 13 cases of abscess of the liver 5 were drained through the epigastrium and recovered, 7 were drained through the chest wall and diaphrágm of which one died. He was very wasted and worn out on admission, and was unable to granulate and repair his abscess cavity; he lived 15 days after operation, and post mortem revealed no trouble other than the cavity of his abscess, efficiently drained, but with its walls necrotic, showing no signs of repair; one case was undiagnosed and died.

Three cases of hepatitis recovered who were all diagnosed clinically as amœbic.

Conclusion.

In conclusion, points of importance are:—

1. Often there is no history of diarrhœa or dysentery.
2. Often no amœbæ are found in the fæces, and even in fatal cases little or no ulceration of the bowel is found post mortem.
3. Fairly low temperature, pulse-rate, and leucocytosis are not always contra-indicative of the presence and quantity of pus.
4. The liver may not be enlarged downwards, or only slightly so, because of necrosis around the abscess occurring rather than the liver enlarging or being pushed downwards.
5. If the puncture fails to find pus in a case diagnosed clinically, an epigastric incision should be made in an attempt to get a scientific early diagnosis and treatment.
6. Drainage should be free, followed by daily sterile dressing and a course of emetine hypodermically.
7. The drainage-tubes should be removed as early as possible to prevent secondary infection and sinus formation.
8. Inflamed lung is liable to disguise inflamed liver below and beneath it.

LITERARY INTELLIGENCE.—Messrs. G. Bell and Sons announce for publication within the next fortnight Dr. Edridge-Green's new book on "The Physiology of Vision, with Special Reference to Colour-Blindness" (price 12*s*. net), and also the same author's "Card Test for Colour-Blindness" (price 25*s*. net).

INFLUENZAL PNEUMONIA:

THE INTRAVENOUS INJECTION OF HYDROGEN PEROXIDE.

BY T. H. OLIVER, M.A., B.CH. CANTAB., M.D. VICT.,
RESIDENT MEDICAL OFFICER, THE ROYAL INFIRMARY, MANCHESTER;
AND
D. V. MURPHY, M.B., CH.B. N.U.I.,
CAPTAIN, R.A.M.C.

IN view of the possibility of a further outbreak of influenza accompanied by broncho-pneumonia, another method of combating the extreme toxæmia and anoxæmia appears to be worthy of record, more particularly so as the clinical importance of the latter has recently been discussed by Professor J. S. Haldane.[1] It is noteworthy that in his paper he lays especial emphasis on the primary need of oxygen *in solution* in the blood.

Theory Underlying the Treatment.

There occurred in Busrah in June and July, 1919, a severe epidemic of influenza, most marked among Indian troops, and accompanied in many cases by an exceedingly toxæmic and fatal broncho-pneumonia. It is unfortunately impossible to give statistics of the mortality of the epidemic, but its extent may be gauged from the fact that in one large Indian hospital in which the influenza cases were segregated in special huts the death-rate was over 80 per cent. in the pneumonia cases with toxic symptoms.

So useless were the usual remedies tried in this latter class of case that we felt justified in giving a trial to any method which held out a prospect of success. It had been observed by one of us (T. H. O.) some years previously that an ammoniacal solution of hydrogen peroxide had, in the presence of a catalyst (copper), a remarkable oxidising power on morphia.[2] Further investigation, as yet unpublished, showed that many other substances were similarly oxidised by this solution, the power of which appeared to depend primarily on the formation of nascent oxygen.

We thought that use might be made of this reaction if the H_2O_2 were given intravenously, in this instance employing the well-known catalytic powers of hæmoglobin as a substitute for the copper, and we hoped thereby, not only to supply oxygen to the tissues with greater rapidity than by the ordinary methods, but also to render the circulating toxins inert by oxidation. The obvious danger was gas-embolism, against which most text-books warn those using H_2O_2 even to wash out serous cavities. We believed, however, in the first place, that pure oxygen, if given sufficiently slowly, would be absorbed before any embolic symptoms developed, and secondly, that the air-embolism known to surgery is really a misnomer for nitrogen embolism.

Effect on Patients.

The first case was an Indian with broncho-pneumonia of influenzal origin and intensely toxæmic. He had been delirious for two days previously, and was selected as being the worst case in the ward and to all appearances moribund. Two ounces of a ten-volume solution of H_2O_2 were diluted with 8 ounces of normal saline, and the solution made slightly alkaline with 5 minims of liquor ammoniæ. This produced a faintly effervescing solution. The median cephalic vein was exposed by open dissection, and the solution infused through a glass cannula attached to a Rogers cholera apparatus.

The solution was infused very slowly, a complete stop being made for half a minute in every four. Small bubbles were allowed to enter the vein unchecked, but if a large accumulation of oxygen appeared in the cannula the transfusion was checked for about a minute until it had gradually entered the vein. The whole transfusion lasted for 15 minutes. The patient showed no signs of discomfort until towards the end of the operation, when he became slightly restless. This, however, passed off in a few minutes, and there were no other untoward symptoms except a moderate rigor which occurred two hours later. After the rigor the temperature, which had been 101·8°, fell to normal and remained so for 36 hours, when it again rose to 101°. The latter rise was not accompanied by toxic symptoms and the temperature gradually fell to normal in the course of the next ten days. The change in the mental condition was remarkable, the patient, who previously had had to be tied in bed owing to delirium, was within six hours of the injection sitting up and asking for food; he slept well the next night and from that time improved in every way, eventually being invalided to India as a walking case three weeks later.

Encouraged by the apparent success in this case, we tried the method on 24 others—cases of influenzal pneumonia—selecting always those whose condition was apparently hopeless. Of the total of 25 cases, 13 recovered and 12 died, a mortality of 48 per cent. Of the 12 who died, 9 showed no visible effect for either good or ill. In 3 there was a temporary improvement. One case only died within five hours of the infusion, during a rigor. One of the cases had four injections at intervals of three to five days without any sign of gas embolism, nor did we find any signs of such embolism post mortem. Of the 13 who recovered, 10 were delirious at the time of infusion and had to be held down in bed. Three were comatose from toxæmia.

The average respiration-rate before the operation was 46 per minute, the greatest being 60 and the least 28. Within 24 hours of the infusion the average rate was 31·5, the greatest fall being from 60 to 24. The noticeable feature, however, was a steadying and deepening of the respiration and a great lessening of the discomfort. The average pulse-rate before infusion was 118. 24 hours later the average was 98.

The temperature in this epidemic was, apart from complications such as malaria or effect of heat, rarely high and usually 101°–103°. In all cases but one the injection was followed by a rigor, after which (except in two of the cases) the temperature fell to normal. Of the two exceptions one remained with the same temperature as before, the other fell from 102° to 100°. The afebrile period lasted usually for 18–36 hours, after which the temperature again rose to 99°–101°, and fell by lysis in 4–7 days.

At this juncture we would point out that the occurrence of a rigor or a fall by crisis is exceeding rare in Mesopotamia in cases of pneumonia. Neither of us remember such an occurrence in an experience of 3½ years among British and Indian troops. As regards the toxæmia, we believe that the frequent occurrence of a rigor and a complete or partial crisis, combined with a rapid improvement in the patient's general and mental condition, indicated that this was overcome in many instances. Whether this was by merely supplying oxygen to devitalised tissues, or whether direct oxidation of the circulating toxins took place, it is not easy to say. It is difficult to believe, however, that so small a quantity of oxygen as is contained in

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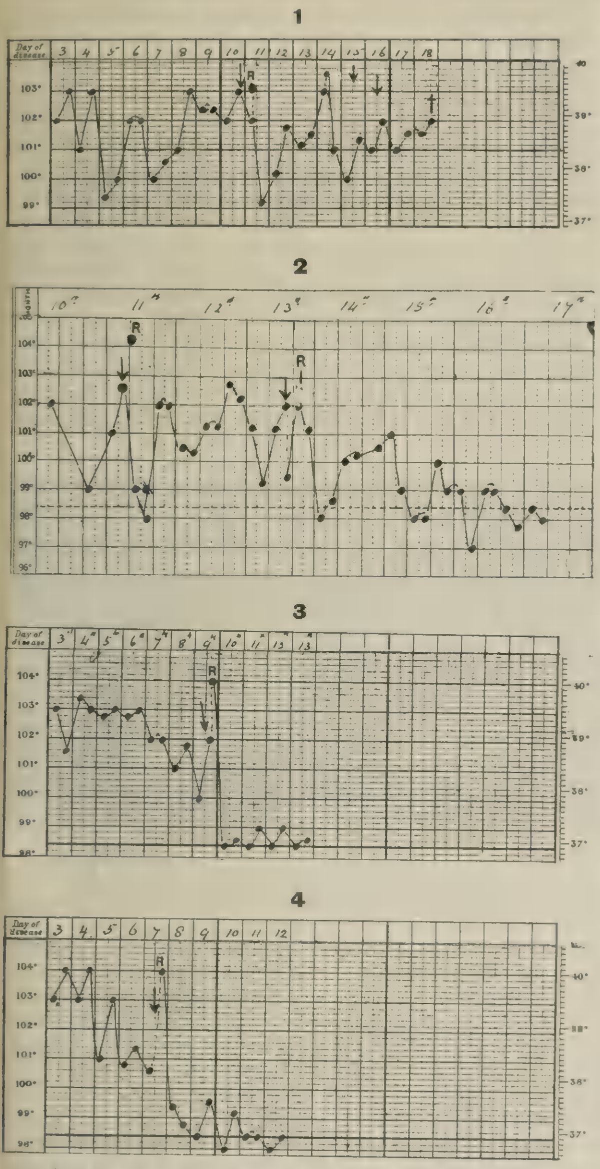
[1] Brit. Med. Jour., July 19th, 1919.

[2] Medical Chronicle, July, 1914.

Charts of Four Cases in which Hydrogen Peroxide was given Intravenously.



An arrow denotes an injection. R = rigor. The first case ended fatally, the others recovered.

2 oz. of H_2O_2 could produce these effects other than by its nascent oxygen, and this view is supported by a trial we made in a case of toxæmia arising from suppurating inguinal glands in which there was no question of anoxæmia. Here the general improvement which so rapidly took place could only be ascribed to direct oxidation.

The accompanying four charts will give some idea of the reactions obtained in one fatal and three recoveries; in the first it will be seen that four injections were given, the first two of which produced a rigor and temporary improvement. In the second two injections were given, each producing a rigor and some improvement both in pulse and respiration rate. In the third and fourth the injection was followed almost immediately by a rigor and subsequently by a crisis. In all these cases there was marked slowing of the respiration-rate after the injection.

Technique.

A strength of 2 oz. H_2O_2 in 8 oz. of normal saline was usually used. In one case 3 oz. H_2O_2 was used without any ill-effect. Fifteen minutes was allowed for transfusion and this was checked temporarily every four minutes, or whenever large bubbles of oxygen appeared in the cannula, or if the patient became at all restless. Small bubbles entering the vein did not appear to do any harm. In one case the patient struggled so violently in his delirium that the cannula slipped out and the distal ligature came off. On pressing the vein above two distinct streams could be seen to issue from the wound, the one above bright red and frothing, the other deep blue.

The epidemic ceased almost as suddenly as it had begun, so we were unable to try the method on earlier cases or to give a more extensive trial to repeated injections.

Conclusions.

From our experience we conclude that—

1. H_2O_2 can be given intravenously without gas embolism being produced.
2. The anoxæmia is often markedly benefited.
3. The toxæmia appears to be overcome in many cases.
4. The mortality (48 per cent.) compares very favourably with the 80 per cent. in similar cases not so treated, and more so when it is remembered that we only treated the most severe and apparently hopeless.

ANÆSTHESIA IN THROAT AND NOSE OPERATIONS.[1]

BY FELIX ROOD, M.B., B.S. DURH.,
ANÆSTHETIST, UNIVERSITY COLLEGE HOSPITAL.

[THE author pointed out that operations upon the ear, nose, and throat are not generally serious in themselves, and that it is, therefore, of primary importance that the technique employed should be as free from risk as possible. After dwelling on the risks of chloroform and mixtures containing it and the comparative safety of ether, Mr. Rood advanced the following arguments in support of his contention that "ether is the proper anæsthetic for operations upon the nose and throat."]

The Degrees of Anæsthesia.

It will be necessary to speak of two degrees of anæsthesia—deep and light. I should like to define what I mean by this. In deep anæsthesia the respiration is regular, automatic, and shallow, the larynx and pharynx are absolutely paralysed and immobile, and respond in no way to stimuli; the recurrent laryngeal nerve is paralysed and the cords stand in wide abduction. The pupil is generally dilated and does not react to light. All reflex activity of the pharynx and larynx is abolished, a Brünings tube can be passed into the larynx, and there is no interference with the quiet rhythm of respiration and no spasm of the cords. The patient in this condition can take no active part in his own operation, he cannot cough. On the other hand, he cannot obstruct his own respiration by laryngeal spasm. If this degree of anæsthesia is induced with ether the patient is pink and rosy, with a full regular pulse of about 80–91.

By light anæsthesia I do not, of course, mean a struggling patient. There is general muscular relaxation, the respiration is regular, but certain reflexes persist, the pharynx and larynx respond with a muscular contraction if stimulated. The patient can cough—and so can in this way protect himself from blood entering the air-passages—on the other hand, he can obstruct his own air-way by spasm of the cords. I assume that, before the administration of ether, atropin sulphate has been injected hypodermically. The contrast in the clinical picture of ether anæsthesia with and without this drug is too well known to need discussion.

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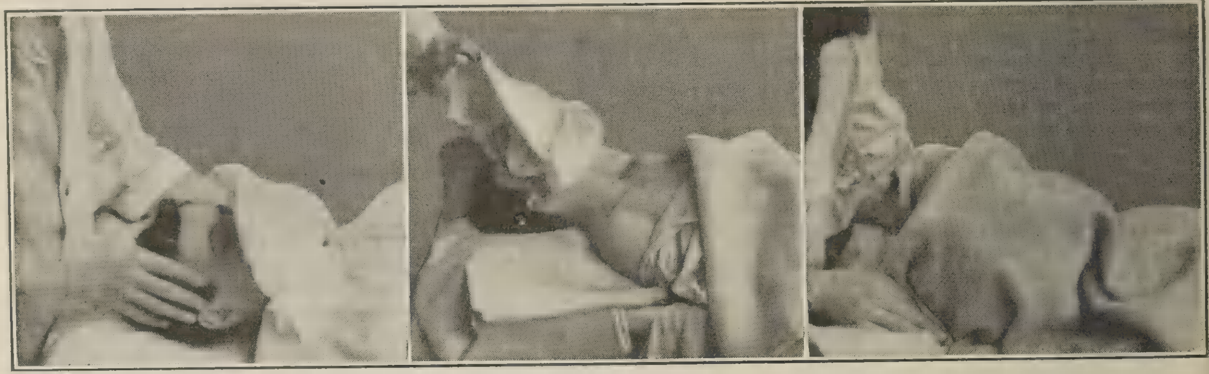
[1] Abridged from a paper read before the joint sections of Anæsthetics and Laryngology of the Royal Society of Medicine on Feb. 6th.

An Alternative Method to the Use of Clover's Inhaler.

There are many ways of inducing anæsthesia with ether, but in order to obtain this deep type a method must be used which is capable of giving a high concentration of ether vapour. So a modification of the so-called open ether method has been devised. It consists of extemporising a bag from a towel as the anæsthesia progresses, and converting the open ether into a semi-closed method, practically into a Clover inhaler, but capable of giving more ether and without the disadvantage of the absolutely air-tight and possibly septic rubber bag. This method is extravagant both of gauze and ether—a whole 6-yard roll of gauze being used for each case, and from 6 to 8 oz. of ether according to the physique of the patient. But it produces in from 6 to 8 minutes a type of anæsthesia that I believe can be obtained in no other way. It requires, of course, some little practice to get the patient under quickly and quietly, and success depends upon a regular increase in the strength of the vapour, so that the patient is always inhaling the maximum percentage of ether that will pass the larynx without producing spasm.



Illustrating the concentration of the ether vapour. The patient is allowed to inhale ether from the open mask for the few minutes necessary to abolish consciousness. A bag is then gradually improvised from a towel, and finally the vapour is still further concentrated by means of some thick substance—a blanket has been used in the illustration.

Dr. H. G. Butterfield has kindly taken the photographs here given from actual cases. The first shows the commencement of anæsthesia. The gauze mask, soaked with as much ether as it will conveniently hold without dripping, is gradually lowered to the patient's face. The second shows how a bag is improvised by means of a towel, and the third how the percentage of ether is finally concentrated considerably by means of a thick substance—in this case to emphasise the point I have used a blanket, but of course a thick towel would do equally well.

Now, although this looks like asphyxiating the patient, the practical fact is that when the respiration becomes shallow in the deep stage of narcosis the patient, although most profoundly anæsthetised, is pink and rosy, provided always that the even regular rhythm of respiration has not been obstructed by a too sudden increase of the strength of the ether vapour during the induction.

Special Application to Oto-rhino-laryngology.

Operations upon the nose and throat stand out in marked contrast to all others, in that blood can pass directly into the air-passages. It is this fact that has hampered the operator, as it may lead to hurry, may obstruct the view, and may necessitate a sudden alteration in position of the patient. No abdominal surgeon is ever called upon to operate upon a rigid and vomiting patient, nor is he generally handicapped by the necessity for speed.

We are familiar with old conditions of operation upon the mouth for malignant disease, in which the surgeon worked at a disadvantage and in a great hurry upon a patient sometimes struggling, certainly coughing up blood at intervals, and in danger of suffocation. Gradual evolution in the operative and anæsthetic technique has now produced a quiet patient, some form of mechanical air-way, allowing the operator ample time and opportunity to control hæmorrhage resulting in a practically bloodless operation, and a clear field for surgical manipulation. This general surgical principle may be extended to nose and throat operations, and I hold that this may be done with complete safety with some slight alterations in traditional methods.

As the technique of anæsthesia differs so materially in different cases, it will perhaps be an advantage to classify them according to the conditions present. For practical purposes we may consider that operations upon the ethmoid, intranasal operations for drainage of the frontal sinus, removal of portions of the inferior turbinates, and operations for drainage of the maxillary antra—both the intranasal and the radical Colber Luck operation, have one feature in common: blood is introduced directly into the nasal cavities and so into the naso-pharynx, whilst at the same time the patient's head is raised. It is obvious that gravity will allow blood to find its way directly through the larynx into the trachea and lungs. It appears that there are three alternative methods of preventing the blood entering the larynx :—

(1) To use light anæsthesia and allow the patient to cough up his own blood.

This is generally effective, but has disadvantages. The amount of blood collecting in the pharynx may become great, necessitating the interruption of the operation in order to mop it out. Furthermore, I have seen blood sucked into the trachea even with a coughing patient.

(2) To shut off the nasal cavities from the pharynx by means of a well-fitting post-nasal plug—using at the same time one of the many forms of mechanical breathing tubes, of which Hewitt's air-way is a type, in the pharynx.

There is an objection urged against this procedure. It is said that a post-nasal sponge, by preventing the blood running into the pharynx and confining it to the nasal cavities, causes it to flow from the nostril, so obscuring the view of the operator. But although it may sometimes be an inconvenience, if the blood is not confined to the nasal cavities it will run through the posterior nares into the pharynx, possibly slightly adding to the danger of the operation however lightly the patient may be under; and, furthermore, it will certainly make the patient cough and by collecting will once more introduce the necessity for a speedy completion of the operation. The advantage gained by the opportunity of a leisurely completion of the operation, with a patient who is absolutely safe from suffocation, even if it does increase the amount of mopping through the nostril, outweighs the transitory gain of a few moments' clear view, accompanied by an increasing collection of blood in the pharynx, which may at any moment give rise to a surgical emergency.

(3) The third method of preventing blood entering the larynx in those operations where the patient is in the raised position is by using the intratracheal insufflation of ether.

That it prevents blood entering the air-passages is admitted; it maintains an even regular degree of anæsthesia—and a mechanically perfect air-way whatever the position of the head. It will be interesting and instructive to hear the opinion of those who have used this machine for these cases. Personally I think that for operations upon the maxillary antrum for malignant disease or even for the radical drainage operation it is almost ideal—but for the more delicate intranasal operations I have noticed that the return blast of air through the nostril churns up the blood and appears to cause the operator more inconvenience than a post-nasal plug. I have often used this machine in conjunction with a post-nasal plug, which prevents the air blowing through the nostril, but the apparatus is bulky for universal use in operations of this nature, and I think that the results obtained with a post-nasal plug and an air-way are equally, if not more, satisfactory.

Anæsthetic Technique in the Removal of Tonsils and Adenoids.

The next anæsthetic technique which I wish to consider is associated with the removal of tonsils and adenoids. I know that there is considerable difference of opinion upon this subject. It is apparent that the type and degree of anæsthesia to be used is intimately connected with the nature of the operation performed, and it is in this operation, I think, more than in all others, that a sympathetic coöperation between the operator and anæsthetist is essential in the interests both of safety and efficiency. I have said before that I personally believe ether should be used as the anæsthetic. That it is safer than $CHCl_3$ cannot be denied. That any degree of anæsthesia can be produced and continued with ether and ether only in the most vigorous adult is a fact that can be verified at any time.

There are, from the anæsthetist's point of view, two methods—one with light anæsthesia, the other with deep anæsthesia.

The first, which I will describe as the rapid method, consists in the removal of both tonsils with the reverse guillotine, the patient either lying on his back or sitting up. After removal the patient is quickly turned into such a position that the blood may drain out of the mouth. Some operators remove the tonsil with the patient lying upon the side.

In the second type of operation a profound degree of anæsthesia is used. Mechanical means are adopted to prevent the entry of blood into the air-passages. The tonsils are removed either by the reverse guillotine or dissection. All hæmorrhage is stopped before the patient leaves the table, as in other surgical operations. This necessitates a modification in the traditional position. It was found essential in the interest of safety that gravity should no longer carry blood into the air-passages. To adopt that general principle of operative surgery of the mouth that if the advantages of a deep anæsthesia, together with a quiet field of operation and opportunity for a leisurely performance, are to be enjoyed some mechanical means must be employed to keep blood out of the air-passages.

In the operation under discussion this is secured in a simple manner. The shoulders are raised upon a sand-bag. The head is allowed to fall back and rest upon the vertex in such a manner that the front of the chest, the front of the neck, and the chin are all in one straight line. This position places the larynx well above the field of operation and converts the naso-pharynx into a dependent receptacle. In this position, and only in this position, deep anæsthesia may be used either for enucleation by dissection or by the reverse guillotine. The surgeon has all the facilities for which he asks—a perfect view, ample time, an immobile field of operation, and every opportunity to stop hæmorrhage. The pros and cons of the different types of operation are entirely a surgical matter, but the question of safety of the various procedures is relevant to the subject under discussion. The originators of the method adopted the position widely used for similar operations, such as those for cleft palate and for removal of small parts of the tongue. These are essentially the same as tonsil operations, and the conditions are identical. The operations used to be performed with the head slightly raised, causing considerable discomfort to the anæsthetist, together with much mopping and coughing. But a cleft palate operation in the head back position presents no difficulty or danger; the surgeon sitting behind the patient has ample time and perfect vision for a somewhat tedious operation. An occasional mop prevents blood collecting in bulk in the naso-pharynx. The patient is under, with even regular respiration, the palate is still, there is no anxiety or difficulty for the anæsthetist.

It is the same thing with the tonsil operation. Carried out by two people who are conversant with the details I do not think it is too much to say that it is mechanically perfect, and that if blood does enter the larynx it is due to a failure of technique and not to a defect in the principle of the method.

The Anæsthetic in Examinations of the Larynx, Trachea, and Œsophagus.

Another group of cases in which the anæsthetic plays a considerable part comprises direct examination of the larynx, trachea, and œsophagus by means of tubes. It seems to me that a profound anæsthesia is essential for these cases, anæsthesia so profound that the cords stand abducted, even in the presence of a tube in the upper opening of the larynx. Spasm of the cords and contractions of the pharynx are the difficulties the operator has to contend with, and I do not think it is too much to say that some of the delicate intralaryngeal manipulations are impossible should this persistently occur. Again, I think ether is the proper anæsthetic to employ. It is sometimes necessary, especially with an irritable larynx, to push it to an extreme degree, almost to the cessation of respiration.

Finally, there are operations upon the larynx for the removal of intrinsic carcinomata. From the anæsthetist's point of view the conditions present are precisely the same as in cases of malignant disease of the upper opening of the larynx, pyriform fossæ, &c. The air-passages are more or less obstructed by a tumour. There may be stridor, and there is possibly definite respiratory obstruction. But here we have a very different state of affairs compared with most other operations upon the nose and throat. The cases are of a really serious nature. An anæsthetic must be given, possibly in the presence of obstructed respiration, in order that a preliminary tracheotomy may be performed.

Now, if ether is administered to these patients, the rise of blood pressure during the induction may cause slight swelling of the mucous membrane and completely occlude the already narrowed airway, with the result that we have an asphyxiated patient, an emergency tracheotomy upon a patient not properly under, much explosive coughing upon the introduction of the tracheotomy tube, with possibly the aspiration of blood and septic matter.

Therefore I think that $CHCl_3$ is undoubtedly the proper anæsthetic, because in the broad sense it is safer than ether in these special cases. A degree of anæsthesia must be maintained sufficiently deep to permit the tracheotomy tube to be introduced without producing reflex coughing, because pneumonia following aspiration of septic matter is a very definite danger, and a proper degree of anæsthesia will always ensure a peaceful tracheotomy.

Summary.

In summing up I may say I have endeavoured to uphold the safety of ether; the danger of $CHCl_3$ as demonstrated, apart from all scientific considerations, by the records of the daily press; the improvements in the methods of administering ether so that the congestion, cyanosis, and salivation of other days have given place to an anæsthesia which has all the merits and none of the dangers of chloroform; and the gradual evolution of operative surgery of the mouth, from the rapid operation and coughing patient towards the ideal of a quiet patient free from all risk of suffocation, combined with every facility for a thorough and deliberate operation.

The Gillson Scholarship for Research in Pathology.—The Society of Apothecaries has awarded the Gillson scholarship for original research in pathology, of the annual value of £105, to Dr. A. L. Urquhart, of St. Thomas's Hospital.

A CASE OF HIRSCHSPRUNG'S DISEASE,

CAUSING ACUTE OBSTRUCTION.

By I. TEWFIK, M.R.C.S.Eng., L.R.C.P.Lond.

The following case is of interest both from the point of diagnosing the condition, which is rare, and also from the point of being simulated by an acute obstructive condition which seldom manifests itself in cases of Hirschsprung's disease. The method adopted in the operative technique is to my mind the most suitable, as it alleviates the shock, and gives a chance to the affected colon to recover and decrease in size—two essential factors in the success of the anastomosis after the resection.

S. L., aged 10, was admitted to hospital on Oct. 27th, 1918, with symptoms of acute intestinal obstruction. Temperature 99° F.; pulse 120, rather feeble. He had been vomiting two days previously.

Previous history.—Five years ago he was admitted to one of the London hospitals, because "the child was always delicate, his stomach was getting bigger, and his bowels very constipated." Often his bowels did not act for a week or ten days. He was in hospital then for about six months with no apparent benefit.

Examination.—The child looked ill, with a furred tongue and the anxious expression indicative of an acute abdomen; his abdomen was protuberant and hard, especially in the lower half. On percussion a dull note was elicited over the greater part of the lower abdomen. The child otherwise looked quite normal.

Operation.—I decided to operate at once and the abdomen was opened through a right paramedian incision. The condition suspected was revealed straight away; in the abdomen was a reddish-blue mass which looked like a twisted ovarian cyst. The tumour really consisted of the descending and pelvic colons greatly distended and full of fæces; the colour was due to the stagnant fæces infecting the bowel wall. I decided to relieve the obstruction first and give the distended and infected diseased colon a chance to improve, and also to lessen the shock of the operation, a matter of vital importance. Through a left gridiron incision I brought out the proximal end of the descending colon, which was quite healthy, after cutting it away from the rest. The distal end was closed up securely with sutures and returned into the abdomen. By the help of my assistant, who dilated the rectum, I was able to empty the contents of the diseased colon. A Paul's tube was inserted in the colotomy. The child was infused through the axilla during the operation. Daily rectal washouts were given to disinfect the colon, which was obviously in an infected condition, and the child made an uninterrupted recovery. On Dec. 3rd I decided to complete the operation. The abdomen was opened through a left paramedian incision; subcutaneous saline infusion was given in the axilla. The diseased colon was found to have decreased in size and was in a much healthier condition. It extended far down in the pelvic colon, which made the resection and the subsequent end-to-end anastomosis rather tedious. The abdomen was closed in the ordinary way and a drainage-tube inserted through the old colotomy incision. Before closing the abdomen a stomach-tube was passed from the rectum past the anastomosis. The bowels acted regularly on the third day, and then daily afterwards till the ninth day, when fæces were noticed to appear through the old colotomy wound. The patient ran an irregular pyrexia for three weeks, beginning one week after the operation. His bowels still acted normally every day while the fæcal fistula was discharging, some days more than others. The fistula eventually closed entirely on March 27th, 1919, and remained closed till his discharge on May 19th. His bowels since the second operation acted normally and regularly every day; the child improved considerably, putting on weight, and looked altogether different. I have recently heard that his fistula broke down, but I presume it will soon close up again.

Rochester.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

WAR SECTION.

GAS POISONING.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 9th, when a discussion was opened by Sir WILMOT HERRINGHAM on Gas Poisoning. The paper appears in the present issue of THE LANCET.

Three Phases of Gas Warfare.

Dr. C. G. DOUGLAS divided gas warfare into three phases: (1) the attacks with gas clouds (chlorine and phosgene) liberated from cylinders in 1915 and 1916; (2) bombardments with shell containing "lethal" gases—e.g., phosgene and diphosgene—July, 1916, to July, 1917; (3) the mustard-gas period, July, 1917, to the armistice, when shell containing either mustard gas, lethal gases such as phosgene, or irritant organic arsenic compounds were employed. During the first two periods the number of gas casualties was by no means excessive, paying due consideration to the magnitude of the attacks and the nature of the gas used. The average mortality amongst the gas casualties was higher in the case of the cloud-gas attacks than in the bombardments with lethal gas shell, the difference being due in part to the progressive improvement in defensive measures against gas, and in part to the fact that gas-shell bombardments were a somewhat ineffective method of delivering the poisonous gas in comparison with the liberation of gas from cylinders. During the last phase of gas warfare mustard gas was responsible for most of the gas casualties, but though the number of gas casualties was large the mortality amongst them was extremely low. In the case of mustard gas, therefore, the main problem of the medical officer is to cope with the great number of gas casualties, and to endeavour to reduce the period necessary for convalescence by improvements in treatment so as to minimise the wastage of man-power. In chlorine or phosgene poisoning the medical officer's hardest task is to tide the case over the acute stage of pulmonary œdema during the first 48 hours after exposure to gas.

Histology and Pathology of Gas Poisoning.

Dr. J. W. MCNEE said he would deal with the subject in the way Sir Wilmot Herringham had suggested might be useful. During the whole period of the war his attention had been focussed entirely on the pathology of gas poisoning, but now it was interesting and important to try to correlate some of the late symptoms with what might be expected to result from the lesions found in the acute stages. He therefore proposed to sum up in a few words the main effects noted in acute cases of chlorine, phosgene, and "mustard-gas" poisoning; thereafter, to indicate the chronic changes which might be expected to follow in the severer cases; and finally, to refer to the actual symptomatology of men now receiving pensions for ill-health on account of gassing. He said that chlorine was a completely irrespirable gas, producing local irritant effects only in the respiratory tract, without any distal action. In the lungs the lesions were extreme disruptive emphysema and intense œdema. During the recovery stage bronchitis was of frequent occurrence. Any late effects might be expected to be due to the emphysema and to the bronchitis. Phosgene produced effects beyond the pulmonary system, in contrast to chlorine. Some of these effects could be studied histologically, but others had never been explained. Phosgene exerted some serious depressant action on the heart, and, in contrast to chlorine, sudden deaths from cardiac failure were well known. Moreover, "grey cases" were much commoner after phosgene than after chlorine. In the lungs phosgene gave rise to great emphysema (not so disruptive as with chlorine) and extreme œdema. The bronchial mucous membrane was little affected, unless sepsis was added, as was common, in the stage of recovery. Another change noted was the occurrence of hyaline thrombosis in the pulmonary capillaries, and thrombosis was also observed in some instances in the glomerular capillaries of the kidneys, and in the capillaries of the white matter of the brain. In the last position the thrombosis was associated with multiple small hæmorrhages. Any late effects of phosgene poisoning might be expected to be due to the pulmonary emphysema, to the effect on the heart, noted clinically, but of unknown ætiology, and perhaps to some of the other distal lesions which have been noted. Mustard gas induced lesions of quite different character from the other two gases. The changes in the lungs were alone of importance for late effects. After a period of incubation (accounting for the absence of deaths on the first day, as shown on Colonel Douglas's chart), necrosis of the mucosa of the trachea and larger bronchi took place, followed by the pouring out of a fibrinous membrane very similar to the membrane in diphtheria. This fibrin afforded suitable nourishment for micro-organisms, the abundant growth of which induced intense septic bronchitis, and often broncho-pneumonia, &c. Œdema and emphysema were not features of mustard-gas poisoning. The late effects might be expected to result almost entirely from the extreme damage of the walls of the trachea and bronchi. The speaker then referred very briefly to some of the symptoms complained of by pensioners. They agreed closely with those to be expected from a study of the acute lesions, consisting chiefly of recurrent bronchitis, breathlessness, and tachycardia. Physical signs to account for the symptoms were not readily elicited. Reference was also made to the condition studied by the French writers, Achard and Flandin, who have described a "pseudo-tuberculosis" associated with purulent sputum and ill-health, but where tubercle bacilli could never be demonstrated in the sputum. They ascribe the symptoms to a fibrosis of the tissues surrounding the bronchi.

Dr. McNee passed round a specimen showing multiple small circular cerebral hæmorrhages.

Tribute to Scientific Workers.

Colonel S. L. CUMMINS paid a warm tribute to the work of the late Professor W. Watson, and of Professor J. S. Haldane, Professor H. B. Baker, Captain C. G. Douglas, Captain Mouat Jones, and Captain S. J. Auld, whose "magnificent services were instrumental in bringing anti-gas defence to the high state of efficiency which was ultimately attained." He considered that Sir William Horrocks "accomplished miracles in producing in the shortest possible time the vast number of masks, helmets, and respirators that were required by the armies in France." Colonel Cummins went on to say: "It was soon evident that anti-gas defence was not a medical service, *not* a service of the kind that should work under the Adjutant-General, but a branch of warfare affecting the integrity of the battle-line; obviously a function of the General Staff. The Gas Directorate was formed under the command of General Thuillier, R.E., in which Colonel Foulkes, while retaining command of the Special Brigade, served as Assistant Director of Gas Services for Offence, while I was appointed Assistant Director for Defence. In this way a great service for gas warfare in all its branches came into existence, and its subsequent history is bound up with the general history of the war. But while I hold strongly that gas warfare in its defensive as well as its offensive aspects must be a function of a special force of scientific soldiers working under the General Staff, I hold equally strongly that the medical and physiological organisation for dealing with gas cases and investigating the effects of gases must be under the Director-General of the Army Medical Services. The knowledge gained by such an organisation is essential to the Director-General and also to the General Staff—to the one in order that everything possible may be done for gas casualties; to the other because it is necessary to know the effect of gases on man and animals when the question arises of which gas to use against the enemy."

Therapeutic Value of Bleeding.

Professor J. S. HALDANE, F.R.S., considered that clinical evidence was of even greater value than laboratory experiments, and he held the opinion that bleeding was of very considerable therapeutic value in those cases of blue asphyxia with engorgement of the veins, as high venous blood pressure favoured the development of œdema of the lungs. The blueness was simply due to anoxæmia, and there was no decomposition of the hæmoglobin. In "grey" cases with no distension of superficial veins obviously no benefit from bleeding was to be expected. Blue asphyxia was more common in the immediate cyanosis following chlorine gassing and grey in the delayed œdema of the lungs following phosgene gassing. To reach the blood the oxygen has to pass through the delicate layer of alveolar epithelium and capillary wall which separates the blood from the air, and the reason why the blood was not properly oxygenated in gas cases was presumably that with the swelling and exudation, and paralysis of secretion by injury to the cells, the oxygen could not get through to the blood quickly enough to saturate it to the normal extent. He considered that the second, and by far the most effective, means of treatment is the administration of pure oxygen in a suitable apparatus. In chlorine cases, owing to the bronchitis, emphysema, and corresponding areas of relative collapse, there is probably an excess of CO_2 in the arterial blood, while in the phosgene cases there is no such excess. In any case the symptoms, apart from the local signs of œdema of the lungs, resemble those of the uncomplicated anoxæmia of very high altitudes.

Sir **WILMOT HERRINGHAM**, in reply, opposed Colonel Cummins's opinion that anti-gas defence was a function of the General Staff. On the contrary, he considered that no scientific work in a medical sense should be under the General Staff, as their knowledge of even elementary science was often so limited as to be humorous to a medical man, and he proceeded to illustrate this by several anecdotes, the truth of which he guaranteed.

CLINICAL SECTION.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 13th, Sir **ANTHONY BOWLBY**, the President, being in the chair, when there was an exhibition of clinical cases.

Thrombo-angeitis Obliterans.

Dr. **W. SALISBURY-SHARPE** showed a case of Thrombo-angeitis Obliterans in a male Jew aged 23 years. There had been constant pain, worse at times, both in the hands and feet, and destructive changes had led to the loss of part of the ring and little fingers of the right hand, of the corresponding fingers of the left hand, and of several toes. The disease had started at 3 years of age. Radiograms showed, in addition to the loss of the ungual phalanges and of part of the middle phalanges in the affected digits, rarefactive changes, more marked in the feet than in the hands.

Dr. **F. PARKES WEBER** said that in this case the pulsation in the dorsalis pedis artery in both feet was very good, and that fact in itself, in his opinion, was sufficient to negative the diagnosis of thrombo-angeitis obliterans. He showed the same patient before this section on Nov. 14th, 1913, as an example of angiokeratoma with bony changes.[1] The patient was then aged 16 years, and since the age of 4 had suffered from chilblains on the hands and feet and pinnæ of the ears, which had left a good deal of scarring. The Wassermann reaction was negative. He remarked at the time that the chilblain condition ordinarily associated with angiokeratoma of the hands and feet seemed to be insufficient to account for the bony changes revealed by X ray examination.

Sir **JAMES GALLOWAY** said that angiokeratoma was not usually so severe, and he had never seen the bony changes in connexion with it. He favoured the original diagnosis.

The **PRESIDENT** pointed out that the feet and hands were warm and not cold and blue, as would be expected in circulatory defects.

Mr. **N. C. LAKE** spoke of a case of thrombo-angeitis obliterans in a Polish Jew, aged 36, for whom it had been necessary to amputate through the centre of the thigh. He was a tailor and a heavy smoker. The Wassermann reaction was negative. The main arteries were seen to be about half the normal size. Sections of the popliteal and of the anterior and posterior tibial arteries were shown.

Unilateral Sweating of the Face.

Dr. **G. DE B. TURTLE** showed a case of Unilateral Sweating of the Face, which was previously shown before the section at the December meeting. The man had since developed a paresis of the external rectus of the right side, producing diplopia. A Wassermann reaction was negative, but there was a definite history of syphilis contracted some 20 years ago. He had therefore been treated with antisyphilitic remedies with considerable improvement, and at the same time the sweating had diminished; the case was again brought before the section in view of a possible connexion between the two conditions.

Unilateral Dwarfism of Limbs.

Dr. **PARKES WEBER** showed a case of Unilateral Dwarfism of Limbs connected with Congenital Chondromata. It was not generally recognised, he said, that the presence of congenital chondromata in long bones might be in some way causally connected with dwarfism of the limbs in question. The patient was a healthy boy, aged 13 years, whose only abnormality was that his right limbs were abnormally short and somewhat deformed. From the acromion to the tip of the styloid process of the radius measured on the right side 35 cm., on the left side 45 cm. From the great trochanter to the tip of the external malleolus on the right side the measurement was 50 cm., on the left side 67 cm. Skiagrams taken in January, 1920, showed the presence of a large chondroma at the lower end of the right tibia and of chondromata in the right ulna and right radius. There was bending of the right fibula, doubtless due to pressure from the tibial chondroma. There was no history of any similar condition in the patient's family. According to the mother nothing abnormal was noticed in the patient at the time of his birth, except a peculiar mottling of the skin of the right upper and lower extremities. The shortening of the right limbs was not observed until the boy was 1½ years old. One or two orthopædic operations had been attempted. In January, 1920, there was a fracture of the right forearm from a fall. An almost exactly similar case in a boy, aged 6 years, was recently shown at the Section for the Study of Disease in Children by Mr. J. E. Adams as a case of shortening of the limbs on one side of the body.

Myxœdema with High Blood Pressure.

Dr. **PARKES WEBER** also showed a case of Myxœdema with High Blood Pressure, preceded by enlargement of the thyroid gland. The patient, a woman aged 55½ years, had still the typical appearance of myxœdema, but, under thyroid treatment lately, she had been losing in body weight, and her face had become thinner, whilst her speech was quicker, and she was less sluggish in her mentality. Her symptoms had commenced about seven years ago, rather more than a year after her menopause. She at first complained of a feeling of stiffness in her feet. The thyroid gland was observed to be enlarged six years ago, and it was still decidedly large, but appeared smaller than it had been. There had been no symptoms of Graves's disease. She complained much of a kind of acroparæsthesia in her fingers and toes. The Wassermann reaction was negative. More observations were required with regard to the blood pressure in cases of myxœdema. In the present patient the brachial systolic pressure was 210–240 mm. Hg.

Pityriasis Rubra Pilaris.

Dr. **PARKES WEBER** also showed a case of Pityriasis Rubra Pilaris (generalised form). The patient, aged 54 years, was a strongly built man. His case was a typical example of generalised pityriasis rubra pilaris (Devergie), the "lichen ruber acuminatus" of Kaposi. The disease commenced in October, 1919, with itching all over his body. On the previous night he had partaken of sardines and brandy. During the two preceding years he had suffered a good deal from dyspeptic pains. The eruption was of the characteristic grater or goose-skin type on the trunk and upper extremities, and there was diffuse keratosis on the palms of the hands and on the feet and legs. On the scalp the eruption had a somewhat seborrhœic appearance. The patient was apparently improving. He had lately been treated by thyroid extract, liq. arsenicalis, and an alkaline sodium salicylate mixture, with hot baths for the pruritus.

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[1] Proceedings of the Royal Society of Medicine, Clinical Section, 1913–14, vii., p. 25.

Mr. R. P. ROWLANDS showed a case of

Gastro-jejuno-colic Fistula.

A gastro-jejunostomy had been performed by another surgeon for symptoms of duodenal ulcer. A year and a half later there had been a second operation for suppurating appendicitis and three years later gastro-jejuno-colic fistula followed, with acid diarrhœa, vomiting, eructation of foul gas, and wasting. X ray examination showed that the gastro-jejunostomy opening was too high, but failed to disclose the opening from the colon to the stomach. A barium enema, however, and subsequent X ray examination, showed the presence of barium in the stomach contents. At the operation the gastro-jejunostomy opening was not small, but the proximal limb of the jejunum was six inches long and greatly distended. Now, four and a half years later, the patient was practically well. Gastro-jejunal ulcer followed gastro-jejunostomy in about 1·4 per cent. of cases, but gastro-jejuno-colic fistula was much rarer. He had only seen three examples and only one of the patients was alive. In one of these the fistula communicated also with the ileum. In two-thirds of the cases of ulceration following gastro-jejunostomy the ulcer was in the jejunum; in one-third at the gastro-jejunal ring. In these colic cases it was in the ring. He emphasised the need for care and suitable dieting of patients after gastro-jejunostomy had been performed, a care which should extend over two to three months.

Dr. WILFRED HARRIS showed a case of

Bilateral Destruction of the Gasserian Ganglia by Alcohol Injection for Chronic Trigeminal Neuralgia.

The patient, a woman aged 49, began to suffer 15 years ago from spasmodic pains on the right side of the face commencing in the upper jaw and spreading to the lower jaw and temple. At first there were remissions of the pain, perhaps for a few months, but the spasms became more frequent and severe in the latter part of 1912, the pain occurring every few minutes and keeping her awake. With the neuralgic spasms she used also to have well-marked right facial spasm, with the exception of the oral muscles and the platysma, and by rubbing the skin of her face during the paroxysms of pain she had rendered that of the lower portion of the cheek and chin on that side almost horny, and had rubbed away the outer half of the right eyebrow. Early in 1913 she had been admitted into hospital, and at that time had no teeth in either right jaw; the sensation of the face was perfect, with no true hyperæsthesia, though she was afraid of light touches starting the painful spasm. In February, 1913, at the late Dr. F. E. Batten's request, Dr. Harris had injected the right foramen ovale under chloroform, by the usual route beneath the zygoma, using 1·75 c.cm. of 80 per cent. alcohol. As a result she had complete right fifth nerve paralysis, motor and sensory, with loss of taste on the anterior two-thirds of the right side of the tongue. Slight keratitis developed after a week, and the eyelids were sewn up for six months. After opening the eyelids again it was seen that the cornea had remained perfectly healthy. There had been no return of neuralgia on the right side and the anæsthesia had remained permanent and complete. The motor root, however, recovered, so that the right masseter, pterygoids, &c., recovered well. Five and a half years later, in August, 1918, there was a recurrence of neuralgia on the left side in the cheek and upper jaw. She stated that she had had "a queer feeling" in the cheek for some months, but no pain until July, when a severe twinge seized her in the upper gum, spreading into the temple and side of the nose. A touch on the lower lip, talking, or eating would start it. Examination showed that the right fifth area was totally anæsthetic, with right-sided loss of taste as before, though the masticatory muscles had recovered fully. He then injected her left foramen rotundum with 90 per cent. alcohol, using the route in front of the coronary process behind the antrum and through the pterygo-maxillary fissure. Fairly deep anæsthesia of the second division of the fifth was produced, and she was free from neuralgia until November, 1919, when it recurred after 16 months. In December it was decided to destroy the left Gasserian ganglion by alcohol injection, in order to give her permanent relief. This was a feasible operation owing to the recovery of the right masticatory muscles, though bilateral gasserectomy was an impossible operation owing to the permanent jaw drop which would be produced from the destruction of the motor branches of both fifth nerves. Using novocaine anæsthesia only, he injected the left Gasserian ganglion with 90 per cent. alcohol, and produced total left fifth nerve palsy, motor and sensory. The left eyelids were closed with strapping at once, and by washing out the conjunctival sac twice daily for ten days the cornea had remained quite healthy. At present there was total anæsthesia of the whole of the front half of the head and face owing to the bilateral ganglion destruction, and she could taste nothing at all until she began to swallow, when she appreciated taste quite keenly. There was no perception of taste whatever on the front portion of the tongue, but she could at once recognise salt, sweet, or bitter with solutions placed on the back of the tongue or fauces. The case was a good illustration of the undoubted fact that in the majority of subjects taste sensations are conveyed to the pons from the anterior two-thirds of the tongue by the fifth nerve and not by the pars intermedia Wrisbergi, the so-called central prolongation of the chorda tympani.

Dr. S. A. K. WILSON, in congratulating Dr. Harris on the result, pointed out the obvious practical advantage of the method over double gasserectomy. There was clearly no loss of muscle sense, and it appeared that the muscle afferent fibres must run in the seventh nerve.

The PRESIDENT said that several years ago he had seen a young officer suffering from causalgia following injury of the median nerve. As the result of a small injection of alcohol the pain went, but after three years there was still loss of motor power. He asked what was the experience of neurologists with regard to injection of a mixed nerve.

Dr. HARRIS, in his reply, stated that he had had some experience of injection of mixed nerves during the war, and had found that complete destruction had been necessary to banish the pain. Recovery of motor function during the time that they were under observation had not been satisfactory.

Dr. WILSON showed two cases of

Symptomatic Paralysis Agitans following Encephalitis Lethargica.

The first was that of a girl, aged 17, who in February, 1919, had influenza. A week later nocturnal delirium was followed in the morning by diplopia and headache, stiffness and weakness in the arms and legs. Two days afterwards ptosis, lasting three weeks and lethargy lasting two months, supervened. The memory was good for events which happened during this state. Rigidity began while she was in bed, and increased for a time after she got up. She could neither walk nor eat quickly. Involuntary movements of the jaw and left arm occurred during the early part of the illness; those in the jaw persisted. When shown, the cerebration and memory were normal. Phonation was weak and monotonous, and articulation slow. Special senses normal. The pupils were central and circular, and there were spontaneous nystagmoid movements and slow punctate lateral deviation of the eyes, but no diplopia. Slight trismus was present and involuntary chewing movements of the jaw, but there was no sensory loss over the distribution of the fifth nerve. The face was symmetrically immobile, with a spastic smile. There was some spasticity of the tongue. Sensation was not impaired. General rigidity was accompanied by a maintenance of the upper limbs in the attitude of Parkinson's disease. There were no involuntary movements other than those of the jaw, but there was slight tremor of the right hand. The gait and general attitude were that of marked Parkinson's disease. Knee-jerks were obtained with difficulty and ankle-jerks were absent.

In the second case, that of a man over 20, encephalitis lethargica occurred in December, 1918. The symptoms gradually disappeared and the patient's condition became that of a typical symptomatic paralysis agitans. Dr. Wilson said that recent work had shown that the lesion of paralysis agitans was situated in the corpus striatum and subthalamic region. He could only suppose that the effects of encephalitis lethargica reached to the depth of these regions.

Dr. WILSON also showed a case of

? *Polyneuritis Cranialis.*

The man, aged 50, complained first of pain in the right ear and tenderness over the mastoid in September, 1918. Two weeks later he developed broncho-pneumonia, with unconsciousness for some days. On recovery of consciousness the pain had disappeared, but he was deaf in the right ear and the right face was paralysed and "dead." He was unable to swallow and was nasally fed for eight weeks. There were headache in the parietal region and occasional vomiting after food. Diplopia was present, but vision was otherwise good. The right shoulder ached and was wasted. His speech was whispering. Since then swallowing had improved, but fluids occasionally regurgitated through the nose, and he could not swallow solids. Phonation was better, but not normal. There was occasional bi-temporal headache. Vision had deteriorated, especially in the right eye, but the diplopia had diminished. There was some weakness of the sphincters. At present the sense of smell was greater on the right side than the left. Taste was lost. Middle-ear deafness was present on the right side. The visual fields were normal and visual acuity good. With regard to the other cranial nerves, there were hypoæsthesia to touch and pain over the middle division of the right fifth, weakness of the right external rectus with diplopia on looking to the right, complete paralysis of the right seventh with wasting, paralysis of the right constrictors of the pharynx with "curtain movement" of the pharynx from right to left, right hemi-palsy of the larynx with defective phonation and paralysis of the right half of the palate, paralysis and wasting of the right sterno-mastoid and trapezius muscles, and paralysis, wasting, and fibrillation of the right half of the tongue, with paresis and slight wasting of the left half. Dysarthria was also present. All the cranial nerves on the right side from the seventh to the twelfth were affected.

A Case of Nerve Disease for Diagnosis.

Dr. J. WALTER CARR showed a case of Nerve Disease for diagnosis. The patient was a boy, aged 8, whose present illness began insidiously in June, 1919, with unsteadiness of the legs in walking and some loss of strength in the left arm. He had been getting gradually worse since. There was no headache or vomiting. He was now unable to stand or walk on account of the persistent tonic spasm of the right leg, leading to flexion of the hip and thigh and extreme extension and inversion of the foot, which was in the position of pes cavus. The left leg showed a much slighter degree of spasm. The spasm persisted during sleep, relaxed under anæsthesia, but returned before consciousness was regained. The plantar reflexes were difficult to obtain, but were probably flexor. In the left arm there was some muscular spasm (increased by attention) and slight weakness. The boy did not use it much. The right arm appeared to be normal. There was some weakness of the back muscles, with a tendency to lateral curvature of the spine. The tongue could not be protruded for more than about half an inch, and speech was very blurred and indistinct. Sensation was probably unaffected. The boy had lately had occasional loss of control over the sphincters and his intelligence was perhaps not quite up to the normal for his age. There were no ophthalmological changes. The Wassermann reaction was negative both in the blood and cerebro-spinal fluid; the latter fluid was normal in all respects.

Mr. A. H. TODD showed a case of Sarcoma of the Clavicle in which the whole clavicle had been removed. The man suffered from no disability.

Dr. H. BATTY SHAW showed a case of

Malignant Endocarditis Affecting the Pulmonary Valve.

The patient, a youth aged 16½ years, had been admitted to hospital with a history that he had been troubled with "heart complaint" for two and a half years, his symptoms being palpitation and shortness of breath on effort. Previous to that he had had no illnesses of any kind. On admission to hospital in December, 1919, he stated that he had developed pain over the heart during the previous four days. His mother was said to have had consumption, but was now well again; his father, brother, and two sisters were quite well. While in the hospital he had had fever almost continuously of a remittent and intermittent character, the maximum being 104° F.; the pulse varied from normal to 120, and the respiration from 24 to 30. He had always been of pale complexion, and during his stay in hospital had lost weight, being now 2 st. under weight. The blood examination showed secondary anæmia, and 5500 leucocytes per c.cm., the polymorphonuclear cells numbering 75 per cent. Cultures from the blood on two occasions had shown the presence of a *Streptococcus longus*. The spleen was enlarged and tender; blood had been found in the urine on one occasion and there were pain and some râles and rhonchi in the right axilla. A loud systolic murmur was heard over the pulmonary area, and there was a distinct systolic thrill in the same position conducted towards the left clavicle. From the facts that cardiac symptoms had only been noted during the last two and a half years, and that there was no cyanosis or clubbing of the fingers, the conclusion was drawn that the narrowing of the entrance of the pulmonary artery was due to malignant endocarditis of the valves, and that the case was not one of malignant endocarditis developing on valves damaged by congenital heart disease.

Sir JAMES GALLOWAY referred to a case which he had seen of malignant endocarditis of the pulmonary valve in which, post mortem, an old infective periostitis of the tibia had been found; and to another case of pulmonary valve infection in a child with no discovered primary focus.

COMBINED SECTIONS OF ANÆSTHETICS AND LARYNGOLOGY.

ANÆSTHESIA IN THROAT AND NOSE OPERATIONS.

A COMBINED meeting of these sections of the Royal Society of Medicine was held on Feb. 6th, Dr. LLEWELLYN POWELL, the President of the Anæsthetics Section, being in the chair, when Dr. F. S. ROOD opened a discussion on Anæsthesia in Throat and Nose Operations. An abstract of the paper is given in the present issue of THE LANCET.

Discussion.

Mr. HERBERT TILLEY said he had only congratulations to offer to Dr. Rood. The prime consideration in the choice of anæsthetics was always the safety of the patient, the second being the convenience to the surgeon. He thought it was indisputable that ether was safer than chloroform, and safer than any mixture of which chloroform formed part. He spoke of some cases in which anæsthesia was induced for the purpose of some trivial operation in a healthy subject, and death occurred before the operation was even commenced. If the substance was chloroform one never knew when such an accident might occur. Some, while agreeing that ether was the safer anæsthetic, considered there was more bleeding under it. If ether were given in the way Dr. Rood had just described there was a little more oozing during the operation, but it occurred while the surgeon was on the spot to stop it; the surgeon should not allow a patient off the table until all bleeding, except capillary oozing, had ceased. With chloroform there was little bleeding at the operation, but it might come on later when the surgeon was not within call.

Dr. D. W. Hill contended that Dr. Rood's method of administration was not correctly described as the "open ether method." Moreover, a means which required eight minutes for induction was not suitable for a busy out-patient department where many adenoid and tonsil cases had to be attended to. He spoke of the rapid and safe anæsthesia produced by ethyl chloride for these cases; he had seen only one case of critical difficulty under it.

Dr. G. A. H. Barton said he had been agreeably surprised to find how well patients did under Dr. Rood's method of giving ether for the enucleation or the dissection of tonsils. By using a little ethyl chloride at the commencement to stimulate the breathing, and abbreviate the period of resentment felt by some patients, and following on with ether, he got the requisite degree of anæsthesia quicker than the eight minutes mentioned by Dr. Rood. For endo-laryngeal surgery it was difficult to administer the anæsthetic through the air-passages. Failing a sufficiently deep narcosis in these cases he inclined to the use of rectal anæsthesia.

Sir StClair Thomson said anæsthesia for operations on the nose, in which blood could be prevented from descending into the air-passages by post-nasal sponges, differed little from other operations. The real anxiety occurred in operations on the pharynx. In the three fatalities he had had, neither the operator, his technique, nor that of the anæsthetist seemed to account for the death. He described the cases. In all, an independent opinion declared status lymphaticus to have been present. Ether was mostly given in America, but one distinguished New York operator had gone back to chloroform, and Dr. Chevalier Jackson carried out his endoscopic operations without any anæsthetic whatever. Sir StClair Thomson had seen a foreign body in the bronchus removed by him from a boy, aged 10, without any anæsthetic.

Dr. J. F. W. Silk discussed the question of the posture; the dependent position of the head, thrown well back, with a pillow under the shoulders, he thought was not in all ways good. Sir StClair Thomson's method of sitting the patient quite upright seemed to have many advantages; the blood flowed out of the nose and mouth, and had no tendency to go into the air-passages. Those who objected to ethyl chloride objected to the bag, not to the anæsthetic; when the bag was used the fatalities from this anæsthetic had been considerable. The induction time of ether could be reduced by adding about 3 per cent. of chloroform; and the consumption of ether was also considerably less. He showed a Kuhn's intubation tube, which rendered induction easy for throat operations.

Mr. W. Stuart-Low referred to the importance of the preparation of the patient, and emphasised especially the need of having a warm room for him. Very few deaths occurred under anæsthetics in India, and that was probably due to the warm climate ensuring operation patients against chill. He advocated operations in the morning, while the patient was fresh, and said there should be absolute silence in the operating theatre, if only that the anæsthetist could listen attentively to the respirations. He had great faith in chloroform, and he had not had a fatality in a young person for 30 years.

Dr. P. Watson-Williams said he would have liked to have heard discussed the advisability of giving morphine or scopolamine and morphine in conjunction with the other anæsthetics which were mentioned. And very little had been said about the blocking off of nerves by the injection of branches of the fifth, which had been carried out at Bristol with considerable success. He considered ether the best anæsthetic for operations on the respiratory tract, and referred to a case in which, after chloroform had been given, there was almost a fatal end. He did not think ether increased the liability to hæmorrhage, nor, if given slowly by the drop-bottle method and not pushed, did it result in much bronchial secretion. Hooper, of Boston, showed that during ether anæsthesia the adductors went first and the abductors last. During forced respiration expiration was slow, owing to medullary impulses, and if there was paralysis of the adductors there was a lessening of the influence of those pulse-slowing factors from medullary impulses. That seemed to be one of the reasons why the cardiac action was less inhibited during ether anæsthesia than during that of chloroform. Operations on the upper respiratory tract meant a pronounced influence on the fifth nerve, and there was likely, therefore, to be more cardiac inhibition than in operations on any other part of the body. He and his Bristol colleagues regarded ether as the ideal anæsthetic for operations on the upper respiratory tract.

Sir William Milligan said that, having been trained in Scotland, he had had a leaning towards chloroform during the whole of his surgical career, and he had had very little reason to regret it. No operation should be considered as a trivial one; each one, however slight, should be regarded as important. He agreed with Mr. Stuart-Low that operations, except those which were absolutely urgent, should be done in the morning when the patient was in his best condition. In such a discussion as this each participant should frankly give his own experience. He had a quite open mind as to the particular anæsthetic which should be used; he practically never interfered with the anæsthetist; the important need was for anæsthetist and operator to understand each other's idiosyncrasies. He was pleased to hear Dr. Silk's remark about Kuhn's intubation tube; he had heard it derided among experts, but he had used it on all possible occasions for the last ten years, even when operating on the nasal septum. But when gauze was taken out of the mouth the blood clot must be removed, or it might be sucked into the trachea. Adrenalin was a very dangerous drug to inject into the body when a general anæsthetic was being used. When ether was used for his cases he always insisted on a preliminary injection of morphia and atropine; under those conditions he had never been seriously troubled with hæmorrhage. He had never yet had, nor seen, a death under an anæsthetic.

Dr. H. E. G. Boyle said ether should not be regarded as the only anæsthetic for nose and throat operations. For two years he had been employing a combination which had three variations. Patients were given a hypodermic injection beforehand, and the anæsthesia was produced by nitrous oxide in conjunction with either ether, C.E. mixture, or, in some cases, chloroform—the latter in cases in which the surgeon was using the diathermic cautery. He had used the method for 590 cases, and those he had instructed added 155 administrations. The hypodermic injection varied in quality and quantity according to the requirements of the particular case. Deep anæsthesia was maintained by the endo-buccal or the endo-pharyngeal method, and needed but little of the drug. The induction by this method was pleasant to the patient, and there was no struggling or undesirable sequelæ.

Mr. Harold Barwell considered that ether, given by modern methods, preceded by atropine injection, was, on the whole, the best anæsthetic for nose and throat operations, especially when obstruction existed. In post-nasal resections he thought the post-nasal plug constituted an embarrassment to the surgeon, and it was unnecessary if the required ischæmia were obtained beforehand by injecting, 15 minutes before the operation, 1 in 10,000 or 1 in 15,000 adrenalin submucously. For such conditions as a suppurating maxillary antrum he preferred the patient to be lying on his side; he had never seen a case of pneumonia after anæsthesia when that posture was adopted.

Dr. A. Brown Kelly said that for prolonged operations he left the choice of the anæsthetic to the anæsthetist, who usually employed chloroform. For brief operations he strongly preferred bromide of ethyl, which he had used 25 years, in many thousands of cases.

Dr. Z. Mennell preferred to commence with gas and oxygen and then pass on to ether. That was quite safe so long as no chloroform was added, though it was very tempting to make that addition.

Dr. CECIL HUGHES referred to narcosis of moderate degree, which, having been commenced with either ether or gas and ether, could be best maintained with chloroform. There seemed then to be less after-sickness.

Dr. DUNDAS GRANT agreed that chloride of ethyl was a good anæsthetic for adenoid and tonsil operations on children, though sometimes he had wished for its longer duration.

Dr. W. J. MCCARDIE (Birmingham) described a method of induction of anæsthesia for nose—especially septal—operations, introduced by Dr. Seymour Jones, of Birmingham. It was known as the gauze curtain mask. Ether is given and the mouth tube inserted; a towel is placed round the patient's head and brought well over the cheeks; the mouth area is well vaselined and the gauze curtain strapped over the lips. The anæsthetic is then dropped on to the gauze over the mouth. He had himself used it with great satisfaction in more than a hundred cases.

Mr. W. DOUGLAS HARMER hoped Dr. Boyle's method would be specially discussed on another occasion.

Dr. HUGH PHILLIPS spoke highly of Dr. Boyle's method. He referred to a recent fatal case under ether administration in a child. The post-mortem examination revealed a thymus weighing 2¾ oz.

Dr. F. E. SHIPWAY declared that he had found very little danger from chloroform in his own practice if breathing was not obstructed.

Dr. ROOD waived his right of reply.

MEDICAL SOCIETY OF LONDON.

THE CLINICAL DIAGNOSIS OF DIPHTHERIA.

A MEETING of this society was held on Feb. 9th, Mr. V. WARREN LOW, the President, being in the chair, when Dr. H. DRINKWATER read a paper on the Clinical Diagnosis of Diphtheria and other Diseases of the Throat. In his opinion the differential diagnosis of diphtheria, except from Vincent's angina, could be settled by the appearance of the throat alone. There was a naked-eye character which he thought was constant. In every case sent into the East Denbighshire Fever Hospital as diphtheria over a period of three years the naked-eye diagnosis had been checked by a bacteriological examination, and without exception the bacteriological examination had confirmed the naked-eye diagnosis and proved the correctness of his views. The term "diphtheria" was applied, he said, to those cases only in which the Klebs-Löffler or the Hoffmann's bacillus was present. For convenience he divided the fauces into three areas on each side of the mid-line: the tonsillar area, the uvular area, and the palatal area. In diphtheria there might be five or six patches but never more than one patch in any one area. He had never met with a single exception to this rule, from which, if established, it followed that if in a given case two or more distinct deposits were seen in one tonsillar area the disease was not diphtheria, and the services of a bacteriologist were not required except for confirmation of the naked-eye diagnosis. It was of the utmost importance that the *whole* tonsillar area should be seen, for he had several times found two or more patches on a tonsil directly after having been told that there was only one. When two or more patches were present on one tonsil or in one tonsillar area the disease was generally follicular tonsillitis or influenza. If in a given case of membranous deposit on the fauces the patch was raised above the level of the mucous membrane, had sharply defined edges, and was single in each affected area, there could be no doubt that the disease was either diphtheria or Vincent's angina.

The features of diphtheria as manifested in the fauces in the early stage were a raised membranous deposit with sharply defined edges; the colour might be glistening white, bluish, yellow, or spotted with black or red; it rarely had the "wet wash-leather" appearance described in text-books; there was only one patch in any one area. These appearances were characteristic of the disease in the period of growth; after resolution had begun and the membrane was being cast off a number of isolated islands might be seen in the tonsillar area, but the diagnosis should have been made before this stage was reached. In many cases it was impossible to differentiate between Vincent's angina and diphtheria, as the distribution of the patches in both diseases was precisely similar. Occasionally a case of Vincent's angina could be recognised owing to certain peculiarities, the most characteristic of which was a sharply defined penetrating ulcer generally in the middle of the patch and running vertically. Sometimes, though rarely, the deposit did not go beyond the margin of the ulcer. Another peculiar feature was the marked thinning of the lower part of the patch, so that the inferior limit was ill defined. If either of these features were present the condition was recognised as Vincent's angina, however closely it might simulate diphtheria in other respects. Later on there was sometimes seen considerable erosion of the uvula, but this was long after the diagnosis should have been made.

Sometimes the deposit was softer and more creamy than that of diphtheria, but in other cases it was extremely dense and tenacious. Vincent's angina might be said to mimic diphtheria, just as hysteria and syphilis mimicked other morbid conditions.

In follicular tonsillitis there were marked swelling and congestion of the tonsils, and pus or muco-pus could be seen oozing out of several follicles. The single patch was never seen. In influenza also the patches were multiple in the tonsillar area and often without any swelling of the tonsils.

Discussion.

Sir JOHN BROADBENT said that the illustrations depicted very accurately the appearance of the throat in diphtheria, Vincent's angina, and follicular tonsillitis. He agreed that the membrane in diphtheria was ashy grey or whitish in colour and not like wash-leather. There was little difficulty in diagnosis in such definite cases as were portrayed, but there were many others in which the appearance was less characteristic or only suspicious, where bacteriological examination alone could supply the diagnosis. The same was true of cases seen first in a later stage. Some cases of scarlet fever with ulceration of the throat presented great difficulty, for they might be almost exactly like diphtheria, and the two were occasionally combined. In these cases cultivation from the throat was important. Mild cases might go undiagnosed and become carriers if there was no bacteriological diagnosis. He raised some doubts as to the specificity of the influenzal angina, and asked whether influenza had been proved to be the cause.

Dr. F. PARKES WEBER referred to the herpetic condition of the throat, which had been illustrated. Herpes in the mouth, in his opinion, was nearly always bilateral and of the catarrhal form, not herpes zoster. It was rare on the soft palate. He compared it with herpes met with on the nose and face, remote from the lips, in mild pneumonia. He had seen in 1918 a peculiar kind of superficial ulceration of the soft palate, having a greyish appearance and butterfly-like in shape, one patch being on the uvula and a wing on each side of the soft palate, to which the name "pterygoid" had been applied. A similar condition had been seen in newly-born children and had been ascribed to rough swabbing.

Dr. W. HILL said that there were occasional cases in which reliance must be placed on the bacteriological findings. Mistakes were likely to be made in diphtheria when the lesions were multiple while the throat was clearing up. In several instances he had met with combined lesions. It might be impossible to distinguish between Vincent's angina and diphtheria from the naked-eye appearances. The "coccal" patches depicted as influenzal might certainly occur in influenza, but they were an epiphenomenon, and might also occur apart from that disease. In difficult cases the illustrations would not help.

Dr. MONTAGUE SMITH narrated a case of what appeared to be typical follicular tonsillitis from which Klebs-Löffler bacillus had been recovered.

Dr. DRINKWATER, in reply, said that he had not suggested that bacteriological examination was unnecessary; it had been done in every case. If the appearances which he had demonstrated were better known by the general practitioner, who saw the cases in their early stage, there would be far fewer inexcusable mistakes in diagnosis, nor would diagnosis be delayed for the time necessary to receive a report of bacteriological examination.

Some New Methods of Illustration.

Dr. T. B. Hyslop read a paper on Some New Methods of Illustration, with pictures from an epidiascope. After brief reference to wood-cutting, typo-etching, lithography, photographic, and allied processes of illustration, he drew attention to "ortho-printing," a method by which pigments were conveyed direct to natural objects and the printed impressions taken from the objects themselves. Ortho-printing could be used for rapid and correct illustration of natural objects, such as ferns, grasses, leaves, flowers, sea-weeds, feathers, fabrics, cloths, laces, surfaces of metals, &c., in art for designs, wallpaper, stencilling, Gesso, woodwork, wood staining, metal work, pyrography, book covers, objects of art on wood, glass, china, and textile fabrics. The process was so simple and the results were so accurate that it would be of use in schools, colleges, polytechnics, &c., either for students to make their own illustrations or for the preparation of slides for lantern projection. Brief reference was then made to the adaptation of the Sherringham daylight reflector for correcting colour effects in artificial light, and to the further elaboration of ortho-printing for lithographic duplication.

Cardiff Medical Society.—At a meeting of this society held on Jan. 20th Dr. Alfred Howell showed a case for diagnosis. The patient, a married woman aged 45, the mother of four healthy children, had always suffered from epistaxis, severe and frequent in childhood, less so in later years; last attack two months ago. Severe hæmatemesis from gastric ulcer when 13 years of age. For last five years a moderate jaundice, no history of colicky pains or rigors. Had not lost weight and had been able to do her housework throughout. No sign nor history of syphilis. A moderate deafness of many years' standing. Urine contained bile. Fæces light in colour. Liver much enlarged to level of anterior superior spine. The edge, well defined and regular, the surface granular, but no large nodules to be felt. The spleen enlarged to the level of the anterior superior spine. Red blood count 4½ millions. Hæmoglobin 80 per cent.; white corpuscles 5200 in normal proportions. Wassermann reaction positive; other organs normal. The diagnosis lay between visceral syphilis, Hanot's hypertrophic cirrhosis of liver, and splenic anæmia (Banti's disease). In spite of the positive Wassermann reaction, the regularity of edge and surface of the liver, and the absence of history and signs of venereal disease made syphilis improbable in Dr. Howell's opinion. Between the diseases named after Hanot and Banti the difficulty in diagnosis was great, and upon it depended the question of operative interference. The age, the great enlargement of the spleen, the presence of bile in the urine, and the leucopenia were in favour of splenic anæmia.—During the discussion which followed Dr. Lyne Blight took the view that the case was one of visceral syphilis, and Dr. Ivor Davies that it was Hanot's cirrhosis.—Dr. Ivor Davies showed a case of Pseudo-hypertrophic Muscular Paralysis. The patient was a boy of 9, first seen at 5 years of age, when the characteristic physical signs were fully present, and there was a history of the peculiar attitude and gait dating from 2 years of age, when he commenced to walk. Two of the mother's brothers were similarly affected, and died at the age of 13 and 15 years respectively. Dr. Davies referred to five similar cases seen by him with a definite history of the disability dating from infancy, and expressed the opinion that this experience supports the view that the pathological changes are antenatal in incidence, and become apparent clinically at a much earlier age than is commonly supposed.

The jubilee of the Cardiff Medical Society was celebrated on Feb. 11th by a meeting of the society and a dinner in the evening. It is interesting to note that Colonel A. W. Sheen, the President of the society, is the son of Dr. Alfred Sheen, who was the first secretary when the society started in 1870. An interesting address was given by Dr. T. D. Lister, who dealt with Some Aspects of the Tuberculosis Problem. An abstract of this address is given in the present issue of The Lancet. The dinner, like the meeting, was well attended, among the guests being the Lord Mayor of Cardiff, Mr. G. F. Forsdike. In the speeches references were made to the future development of the Welsh National Medical School as an integral part of the University of Wales and of the life of the Principality.

Norwich Medico-Chirurgical Society. — A meeting of this society was held at the Norfolk and Norwich Hospital on Feb. 3rd. A proposal to amalgamate the society with the Norfolk branch of the British Medical Association had been brought up at a previous meeting and since considered by the committee, who now reported that they did not consider the amalgamation advisable at present.—Mr. G. Maxted showed two cases of Primary Optic Atrophy in women. One of these he considered to be due to a tumour of the pituitary body. — In discussing the cases Dr. A. J. Cleveland said that the American surgeon, Cushing, advocated removal of pituitary tumours by operation, which was, in his opinion, quite an easy procedure. —Mr. W. E. Wyllys (Yarmouth) related a case of a Dislocated Cataractous Lens which he had removed by linear extraction.—Dr. H. J. Starling spoke on auricular Fibrillation, and showed three cases illustrative of the condition. He referred to Mackenzie's and Lewis's researches, which had demonstrated the existence of auricular fibrillation as a clinical entity. The cases exhibited showed very well the chief important diagnostic points of auricular fibrillation—viz., a pulse which remained irregular at varying rates, whether fast or slow, and an indistinct muffled diastolic murmur which replaced the typical pre-systolic murmur of mitral stenosis.—Dr. Starling also showed two cases of Subacute Infective Endocarditis.—Dr. E. B. Hinde showed a case of Tuberculous Shoulder and a case of Menierè's Disease.—Mr. C. Noon commented on a case of Actinomycotic Infection.—The following specimens were exhibited:—A Lacerated Kidney and a Ruptured Kidney, both injured whilst playing football. —Mr. E. W. Everett: Uterus and Tubes removed for Gonococcal Infection.—Mr. Noon: Arteries from the Leg of a case of Senile Gangrene.—Mr. A. J. Blaxland: Uterus showing Carcinoma of One Lip of a Hypertrophied Lacerated Cervix; also a Tuberculous Kidney removed by the Abdominal Route.—Sir H. A. Ballance: Radiogram of a Right Kidney with two very large calculi. He also showed a Peptic Ulcer of the Jejunum; and a Duodenal Ulcer, causing fatal hæmorrhage, with a peptic ulcer of the jejunum in addition.

Leeds and West Riding Medico-Chirurgical Society.—A meeting of this society was held on Feb. 6th. The cases and specimens shown were not numerous, but were of interest; whilst some shed light on yet obscure points in pathology.—Dr. C. W. Vining showed temperature charts from a soldier who, in 1916, whilst in Mesopotamia, had suffered from sandfly fever. About two and half years later the patient developed a remittent fever. Careful and repeated physical examination revealed no signs. Blood examinations, cultures from bowel contents, blood, and nasopharynx were equally bare of result. The patient was kept in bed under varied treatment, but with no effect on the temperature, and he lost weight. He was allowed to get up; the temperature immediately began to wane and in a few days became normal. He gained weight. On being put back to bed the temperature again rose, with loss of weight. Alternations of bed and "out of bed" always showed the same phenomena. Finally he was kept up, and now appears to have regained his usual health.—Mr. E. R. Flint showed a case of unusual interest. The patient, a man, had, when 24 hours old, been operated on by Mr. H. Littlewood for imperforate anus. Five months later he developed abdominal distension with marked constipation, which was relieved by drugs and enemata. Ten years later he was troubled with abdominal discomfort and constipation. In May, 1918, there was enormous distension of the belly, again relieved by enemata, but in the August following a Paul's tube had to be tied into the colon. There was never any obstruction, and all the time the anus admitted two fingers. Later the tube came out and the bowel was closed. The condition, however, recurred in November, and on opening the abdomen the sigmoid was found to be enormously distended: this portion of the gut was resected, anastomosis done, and the belly closed. The dilatation was purely local and measured 22 inches in circumference. The man is now well and working. The case was one of Hirschsprung's disease—obviously a congenital abnormality and not dependent on obstruction, and associated only with the imperforate anus.—Mr. H. Collinson, Dr. L. A. Rowden, Mr. J. F. Dobson, Dr. G. W. Watson, Dr. W. MacAdam, and Mr. W. Thompson also showed cases.—Professor T. Wårdrop Griffith gave a paper on the Electrocardiograph and its Teachings. He covered the now familiar ground from Kolliker to Einthoven in an inimitable way. Numerous electrocardiograms, some historic, showed the scientific and practical value of the instrument. Professor Griffith indicated that in disturbances of rhythm the electrocardiograph was a necessity. It was the only method of localising a block in the right or left branches of the bundle of His, or determining right or left ventricular excess. Further, by its use Mackenzie's nodal rhythm had been shown to be auricular fibrillations. The electrocardiograph was the most certain method of diagnosing transposition of the heart.

DERBY MEDICAL SOCIETY.—A meeting of this society was held on Feb. 10th at the New County Offices, St. Mary's Gate. Sir Richard Luce presided.—Dr. S. Barwise, county medical officer, read a paper entitled "The Problem of Tuberculosis," in which he emphasised the view that tuberculous infection enters most frequently by the tonsils or intestines and that the risk from dried sputum is remote.—Dr. W. C. Fowler, medical superintendent of the County Sanatorium, read a paper on Artificial Pneumothorax Treatment, illustrated by some excellent radiographs.—An interesting discussion took place afterwards, in which the President, Dr. C. A. Greaves, Dr. A. E. Brindley, Dr. H. G. Dawson, Dr. Helen Greene, Dr. J. G. Nicholson, Dr. E. Watt, Dr. G. S. Sims, and Dr. H. Barber took part.—After the meeting members inspected the County Laboratories where some interesting slides and specimens were exhibited.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.—At a meeting of this society, held on Feb. 4th, Dr. Edwin Bramwell read a paper on Encephalitis Lethargica. After briefly outlining the circumstances which led to the condition being recognised as a definite clinical entity, and mentioning the literature of chief importance, Dr. Bramwell described the main features of diagnostic interest. The symptoms vary very much in different types, and also the mode of onset. In many cases the disease sets in gradually, some days or even one or two weeks elapsing before it is fully developed. There was usually a rise of temperature, associated with headache and often vomiting. The patient became increasingly drowsy, and there was frequently diplopia, paresis of accommodation, marked constipation, difficulty in passing urine, and neurotic pains. Extreme asthenia was common, but excitement might also be pronounced. The asthenic type was the most important, but cases might develop suddenly with apoplectiform symptoms; meningitis might also be simulated, or neuralgic pains in the head and limbs be the chief manifestations. The appearance of a typical case was very striking. The patient lay quietly on his back for hours at a time, the face was flushed, the eyes half closed; he was disorientated, appeared to have no interest in anything, and made no complaint. The lips moved, but the face was characteristically immobile and featureless; responses were very slow. There was often marked tremor, fumbling with the bedclothes, jerking movements, delirium, and sleeplessness. The somnolence might deepen into coma. Dysphagia occasionally occurred. A diffuse erythema had been noted. There was general muscular weakness, the third nerve was liable to paralysis, and the facial muscles were often weak from involvement of the seventh. The cerebro-spinal fluid was clear; sugar was present in the urine in two cases observed. The various types of the disease were then outlined in detail and the difficulties of diagnosis discussed. In rarer cases tumour of the brain, paralysis agitans, and disseminated sclerosis might be simulated. The sexes were affected equally, and the disease might occur at any age; it seemed to be commoner in the colder months. The mortality varied considerably in different series of figures. In cases which recovered progress was usually slow, some degree of stupor persisting for weeks or months. There was no specific treatment, but strychnine and quinine both seemed of value in special cases.—Dr. James Miller discussed the morbid anatomy, histology, and bacteriology of the disease, and showed numerous lantern slides and microscopic preparations by way of illustration. The morbid anatomy was not very definite, but there were striking changes in the mesencephalon, including œdema, chromatolysis, and perivascular infiltration. The bacteriology was also discussed, as well as experimental transmission of the disease.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—At a meeting of this society, held on Feb. 6th, Mr. A. E. Maylard, the President, in the chair, Dr. W. F. Somerville described "The Bergonie chair, an apparatus for producing a painless, alternating, interrupted electrical current," and demonstrated its application in treatment. By this painless method of faradisation the muscular system was said to be improved and developed, the nutrition of bones and joints improved; the heart's action assisted and breathlessness and œdema relieved; the nervous system quieted and sleep often improved; obesity lessened, constipation relieved, and general nutrition accelerated.—Dr. W. S. Syme, in a communication on "Malignant Disease of the Larynx," pointed out that in this country this disease was much commoner in men than in women, whereas malignant disease of the lower pharynx was commoner in women. Intrinsic disease—i.e., affecting the cords, anterior fornix, subglottis and false cords—might remain as a local condition for a long time, and hence could frequently be treated by thyrotomy and removal of the growth and surrounding tissue. But in extrinsic disease, affecting other portions of the larynx, glandular infection was very common, and the patient was often seen by the surgeon too late for operation. Hence the importance of early diagnosis in cases of persistent hoarseness. Dr. Syme showed a patient whose larynx he had removed two years ago for extrinsic disease. There had been no recurrence and the patient had developed a quite intelligible pharyngeal voice. He reported also three cases of removal of a vocal cord, by thyrotomy, one 2½ years and the other 3½ years ago, without recurrence, and a third more recent case.—Dr. Adam Patrick described a case of Multiple Oriental Sores (Leishmaniasis) infected in Mesopotamia early in 1919 and treated by intravenous injections of antimony. The injections, 11 in all, were given twice weekly, beginning with a dose of 0·04 g. of tartar emetic and increasing to 0·12 g. The seven ulcers present, on hands, legs, &c., had healed satisfactorily. Mr. Archibald Young described, and showed specimen removed by operation from, a case of Ulceration of the Ileum, Cæcum, and Ascending Colon, with Intussusception of the Appendix. The patient, a woman aged 34, had for two years suffered from progressive loss of weight and strength, and from persistent severe pain in the right iliac fossa. The bowels had for long been constipated, but latterly, when moved, they tended to be loose. On examination under an anæsthetic a tumour about the size of a chestnut was made out in the region of the first part of the ascending colon, and suspected to be malignant. Laparotomy was performed, and as extensive glandular enlargement was found, the last four inches of ileum, the cæcum, and ascending colon were excised. The mucous membrane of this portion of bowel showed extensive ulceration, typically tuberculous both to the naked eye and on microscopic examination. Ulceration was specially marked in the cæcum around the partly intussuscepted appendix. Convalescence was uneventful and the patient left hospital a month later greatly improved in health. Mr. Young referred to three other cases of intussusception of the appendix, the first two of which he had reported to the society in 1911: (1) A child, aged 4½, operated on for a suspected partial and recurrent obstruction of the bowel; (2) a woman, aged 24, operated on because of highly acute symptoms suggesting acute appendicitis; (3) a woman, aged 20, operated on in 1917 on account of appendicitis of more chronic type with recurrent attacks extending over several months. The specimen from this case also was shown to the meeting. In all four cases it was probable that the exciting cause of the intussusception of the appendix was the local irritation exciting excessive peristalsis of the organ.

RONTGEN SOCIETY.—A joint meeting of the Institution of Electrical Engineers, the Electro-therapeutic Section of the Royal Society of Medicine, and the Rontgen Society, will be held in the Royal Society of Medicine, 1, Wimpole-street, London, W., on Thursday, Feb. 26th, from 5 to 6.45 P.M., and 8.15 to 10 P.M. A discussion on "Electrical Apparatus in Relation to X Rays," will be opened by Dr. Reginald Morton (Efficiency of High Tension Transformers); Major C. E. S. Phillips (The Problems of Fluctuating and Alternating Currents); and Mr. R. S. Wright, M.I.E.E. (High Tension Transformers). Those wishing to take part in the discussion are invited to apply for advance copies of the papers ten days before the date of the meeting. There will be an exhibition of apparatus in the adjacent rooms. The "Silvanus Thompson Memorial" Lecture will be delivered on March 2nd by Professor W. H. Bragg, C.B.E., F.R.S., on "Analysis by X Rays." Professor Bragg has been Quain Professor of Physics in the University of London since 1915, when he also received the Nobel prize for work on X rays and crystals. Members of scientific societies will be admitted to the lecture on signing the visitors' book. The honorary secretaries of the Rontgen Society are: Dr. Robert Knox, 38, Harley-street, London, W.1., and Dr. R. W. A. Salmond, O.B.E., 51, Welbeck-street, London, W.1., to whom all communications should be addressed.

LIEUT.-COL. G. HORNE, A.M.S., Australia, has been appointed an Esquire of the Order of St. John of Jerusalem in England.

PRINCE OF WALES HOSPITAL, CARDIFF.—Definite steps have now been taken to organise this hospital for civilian service, and a fund sufficient to ensure its future is being accumulated rapidly. The representatives of the army and navy on the council are being replaced by others interested in the industrial life of Wales. The last of the Service patients will be leaving shortly, and the institution will be opened to help maimed civilians. Already statistics have been collected which show that in Wales maimed civilians are equal in number to those crippled in the war. The hospital, which owes its existence to the enthusiasm of Sir J. Lynn-Thomas, was early to originate after-care for surgical cases; its transference to civilian service opens up a vista of surgical possibilities for the future.

Reviews and Notices of Books.

REMINISCENCES OF THREE CAMPAIGNS.

By Sir ALEXANDER OGSTON, K.C.V.O. London: Hodder and Stoughton. 1919. Pp. 335. 16*s*.

THIS book deals with the author's experiences in the Egyptian and South African wars, and on the Serbian and Italian fronts in the recent war; its claim of special interest to medical men rests on the criticisms of the Army Medical Department. Sir Alexander Ogston believes that medical matters will never be placed on a satisfactory footing in the army until the Medical Service is removed from the control of the War Office. This idea is evidently the motive of the book. In Part I. he deals with the Egyptian War and says: "It was not difficult to detect that the best men, physically and otherwise, were in the other branches of the army, while it was the residuum only which were attracted into the ranks of the Army Medical Department." In the interval between the Egyptian War and the South African War the author visited Germany, France, and Russia, and became acquainted with their army medical services, and then concluded that this country was seriously falling behind the other European powers in its medical and surgical provision for war. So that he appears as a frankly prejudiced critic of later events.

Dealing with the South African War in Part II., he says that such impediments as were placed in his way came from the Army Medical Department. He repeats the criticisms of a colonel who commented on the alleged jealousy of the medical department, and on the impediments, described as unreasonable, but placed in the way of the sick and wounded, who thus could not receive the comforts that private benevolence was eager to place at their disposal. This officer also remarked on the scandal, if it occurred, that in bad cases the nursing by trained women was refused by the medical authorities. When Sir Alexander Ogston visited the Third Stationary Hospital there were no antitoxin serums, no X ray apparatus, and the instruments and apparatus were ancient in type. On a visit to the Red Cross depôt in Parliament House at Cape Town he found plenty of useful stores accumulated, but a want of proper organisation for their distribution, so that in his opinion they might almost as well have been left in England, for all the use they were in Africa. He states that the work of the Red Cross was rendered almost of no avail by the unspoken but clearly shown jealousy and even hostility of the Army Medical Department, and that his advocacy of reform in the medical services resulted in the adoption of a hostile attitude towards him by some officers in the medical services.

The author mentions the assertion of Block, the Russian writer on modern warfare, that calamity is likely to ensue if the aid of the civilian population is not early organised and regularly continued on behalf of the sick and wounded in warfare. This aid must supplement the medical organisation within the army, as was fully proved by the South African War, and he considers that there was abundant evidence that the heads of the Army Medical Department in Africa were out of sympathy with progressive ideas and had no proper appreciation of the value of the civilian consultants. He quotes from Mr. Burdett-Coutts's famous description of the terrible conditions following the occupation of Bloemfontein.

Coming to the late Great War, the author's experiences in Serbia have led him to be critical of some of the British contingents. He formed, however, a high opinion of the Serbian hospitals proper and of their medical military officers, and has a warm appreciation of the Italian medical services. The only defect in the Italian hospitals that he mentions is the absence of young and competent women nurses. In all his reminiscences the author indicts the methods of the Royal Army Medical Corps, and while removal of the censorship allows frank criticism, it will also make frank rejoinder possible.

JOHNS HOPKINS HOSPITAL REPORTS.

Vol. XVIII. 1919. Baltimore: The Johns Hopkins Press. With 124 figures. Pp. 452.

THE present volume, which is divided into two parts, contains a number of papers dealing with original contributions from various members of the staff of this famous hospital. In variety of subjects selected and excellence of illustration this report maintains the reputation gained by its predecessors. The ductless glands receive considerable attention, particularly the pancreas, which forms the subject of three separate communications. E. W. Goodpasture and G. Clark demonstrate the presence of a toxic substance in the fresh pancreas which is associated with the B. nucleo-protein. Injection of this protein, or protein combined substance, produces symptoms comparable with those met with in acute hæmorrhagic pancreatitis. An interesting case of diabetes mellitus associated with hyaline degeneration of the islands of Langerhans is described by M. C. Winternitz. The morbid anatomical changes in the pancreas in diabetes mellitus are not always convincing, and consequently such cases as that described are of more than passing interest. In a third paper contributed by A. D. Clark two changes are found to occur in the utilisation of sugar by the living heart tissue, viz.: a condensation of part of the sugar to a non-reducing form and a destruction of the remaining part. The condensed sugar can be again recovered by hydrolysis, but the fate of the destroyed portion was not ascertained.

D. W. Wilson and his collaborators contribute a paper on the question of parathyroid tetany. The tetany which follows removal of the parathyroids can be relieved by acids and also calcium salts. The effects of administration of acids in producing relief from tetany is explained by the occurrence of an "alkalosis" which the body attempts to neutralise by the production of acids in the muscular movements associated with tetany, and a condition of "acidosis" may occur after acute or chronic tetany. Winternitz in a paper on "Some Observations on the Effect of Feeding Glands of Internal Secretion to Chicks," describes the effects of dried anterior lobe of the pituitary body on the growth and development of the reproductive glands in both sexes. In some cases the effects on development and egg-laying capacity were very striking. A number of papers deal with cellular metabolism and histological changes in the cell, and have a bearing on the question of malignant tumours. The relation of old age to cell overgrowth and the occurrence of malignant tumours is described by Goodpasture and G. B. Wislocki. M. T. Burrows and C. A. Neymann have studied the metabolism of cells in vitro and the influence of α-amino acids on embryonic chicken cells. Their observations tend to show that cells are unable to live in any great concentration of amino acids.

A number of papers will interest the clinician, and many of them illustrate the thorough and painstaking way in which the cases have been worked out. Bayne-Jones contributes a paper on Carcinoma of the Pleura with Hypertrophic Osteo-arthropathy, with a description of a case. E. D. Plass, in addition to giving an extensive bibliography, comprising 204 papers dealing with various congenital anomalies of the œsophagus, describes a case of congenital atresia of the œsophagus, with tracheo-œsophageal fistula and fused kidney. A paper on Gaucher's Disease, by J. H. M. Knox and his collaborators is of interest, as the two cases described were infants, whereas the literature on this disease is mainly confined to its occurrence in adults. As illustrating the path of spread of generalised tuberculosis, a paper by Winternitz, in which a case is described of generalised miliary tuberculosis which occurred as the result of extension of a tuberculous pericarditis into the heart cavity.

The number of papers in the present volume exceeds that of previous years and the pathologist, histologist, morbid anatomist, and clinician will each find papers of special interest to him in this collected work. Such reports illustrate the advantages possessed by a hospital and university medical school, not only in the coöperation of their work, but the numbers of workers available to investigate the valuable clinical material.

PHYSIOLOGY AND NATIONAL NEEDS.

A Course of Public Lectures delivered at King's College. Edited by W. D. HALLIBURTON, M.D., LL.D., F.R.C.P., F.R.S., Professor of Physiology, King's College, London. London: Constable and Co., Ltd. 1919. Pp. 162. 8*s*. 6*d*. net.

SOME seventy years ago Sir James Paget dwelt, in a public address, on the importance of the study of physiology as a branch of education for all classes, believing that even a moderate acquaintance with its principles, acquired early in life, would benefit a man both in body and mind. He also pointed out that none of our untaught faculties, neither senses nor instincts, were sufficient guides to good or guards from evil, even in the ordinary conditions of civilised life, and that this was particularly so with regard to health. His statement that while endeavouring to improve present means of life men took no pains to prevent or remedy the future evil cannot be wholly applied to the work which was carried on in our laboratories during the war, but now that the immediate menace is passed it behoves us to see that apathy does not supplant the enthusiasm born of necessity. While it is admitted by thinkers generally, and by the more thoughtful of our legislators, that education of the people is a great national asset, the idea conveyed by the word education does not, save among a very small minority, include those sciences which directly bear upon the health of the people; yet apart from the utility which a broad knowledge of physiology and hygiene, for example, may have on the individual, there is the even greater effect which such a knowledge on the part of the people will have on the nation as a whole.

We are controlled by public opinion, and efforts to apply the discoveries of medical science are wasted unless backed by that opinion. Public knowledge is the remedy, and such lectures as those delivered in the spring of last year under the auspices of the Imperial Studies Committee of the University of London, are good examples. These lectures were briefly reported in THE LANCET at the time they were delivered, and, like the preceding course, "Animal Life and Human Progress,"[1] illustrate the needs and uses of science during the stress of war with its implied application in times of reconstruction and peace. In the introductory lecture, Physiology and the Food Problem, Professor Halliburton, who organised the course, reminds the reader that medical progress during the last four years has probably been more rapid than in the previous 40, and reviews the work done by the Medical Research Committee, the Food Committee of the Royal Society, and by other bodies in standardising and guarding the food supplies of the nation. To this lecture has been added an appendix summarising the main principles of dieting. The two following lectures, by Professor F. Gowland Hopkins and Professor A. Harden respectively, demonstrate the effect of vitamines and the pathological results of their absence in diets; and in the fourth lecture Professor Noël Paton shows the importance which physiology plays in the study of disease, illustrating his theme by showing how this science came to our aid during the war. Emphasising the importance of physiological study, he says: "Without a training in medicine the physiologist can approach the study of disease with some prospect of success; without a knowledge of physiology the physician is merely groping in the dark." Professor A. Dendy gives an interesting account of what was done during the war to prevent the destruction of grain by weevils; and the last lecture, which was delivered by Professor M. S. Pembrey, is a plea for improving the health of the nation by muscular exercises in the form of games, sport, or work in the open air.

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[1] THE LANCET, June 28th, 1919, p. 1120.

1. DISEASES OF THE SKIN.

By RICHARD L. SUTTON, M.D., Professor of Diseases of the Skin at Kansas School of Medicine. Third edition. London: Henry Kimpton. 1919. With 910 illustrations and 9 coloured plates. Pp. 1084. 42*s*. net.

2. SKIN DISEASES.

By FREDERICK GARDINER, M.D., Lecturer in Skin Diseases at the University of Edinburgh. Edinburgh: E. and S. Livingstone. 1919. With 46 illustrations. Pp. 160. 6*s*.

1. Dr. Sutton has brought the third edition of this handsome volume carefully up to date, as reference to the various maladies discovered or more widely recognised during the war will prove to the modern student. Thus there is a brief but succinct description of the effects upon the skin of tetryl, of mustard gas, and of other chemical irritants which have been widely used in the preparation of munitions or in active warfare. We note also reference to the use of remedies discovered and proven to be of value during the war, such as dichloramine-T, and the paraffin-wax treatment of burns. Curiously, Dr. Sutton does not mention that the employment of this latter agent was first popularised by the results obtained in the treatment of war burns by the "ambrine" of Dr. Barthe de Sandfort in Paris. Full and complete monographs on the less common maladies are not to be found in this volume, but though the descriptions of rare diseases such as erythema figuratum perstans and necrobacillosis, are very brief, they contain the essential and differentiating features. The references to literature throughout will aid the student seeking further knowledge of uncommon conditions in dermatology. As befits these times, when venereal diseases have been proven to be the frequently unsuspected cause of chronic deep-seated maladies, syphilis is treated at considerable length. The paragraphs on treatment throughout the book are, on the whole, of practical value, and in many cases original. On the other hand, certain details are somewhat perfunctory. Complete X ray details are given for the X ray treatment of ringworm, but in many cases the reference to X ray technique is too vague to be of any use. The information regarding the treatment of urticaria and psoriasis by the injection of a foreign protein is well up to date and very clearly described. The illustrations are of uneven value, though some are excellent.

2. Dr. Gardiner's little volume justifies its claim to be the outcome of experience in lecturing, and is a practical introductory handbook for the student or practitioner. As far as possible, the diseases are described in order of occurrence in practice, though this rule is not adhered to when syphilis and tuberculous conditions are described after such rare maladies as dermatitis herpetiformis and pityriasis rubra pilaris. In view of the importance of adequate instruction in the methods of treatment of syphilis it is disappointing to find so brief a description and such lack of detail as to precise dosage and length of time necessary to continue under treatment. The illustrations, as a whole, are not up to the high standard found in modern text-books of dermatology.

SYMPTOMS OF VISCERAL DISEASE.

A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine. By F. M. POTTENGER. London: Henry Kimpton. 1919. Pp. 328. 21*s*.

TAKING as his subject-matter the symptoms of visceral disease, the author has attempted in this monograph to interpret these symptoms in terms of visceral neurology, and thus to bring out more clearly the relationship between physiology and clinical medicine. The bulk of the monograph is devoted to a study of the innervation of the viscera and visceral reflexes, whose range the author considers extremely wide. He believes, for example, that an inflammatory condition of the lung may reflexly set up impulses passing out not only along the efferent fibres of the vagus, but even along the entire cranio-sacral autonomic system, including the pelvic nerve. In the last section of the book the author deals with the purely physiological aspect of the autonomic nervous system. Although it contains some useful information, this monograph lacks the critical and discriminating spirit which is so important for the successful correlation of clinical observation with physiological evidence; and we do not think the book is likely to prove helpful to the practising physician.

Rectoscopie-Sigmoïdoscopie.

Par le Dr. R. Bensaude, Médecin de l'Hôpital Saint-Antoine. Paris: Masson et Cie. 1919. With 15 plates. Pp. 48. 28 fr.

This monograph on the uses of the proctoscope and sigmoidoscope contains an account of the apparatus and the necessary technique, with brief remarks on indications, contra-indications, and the value of the procedure for diagnosis. The book is not overweighted with text, and the remarks in the three pages devoted to the therapeutic applications of the proctoscope are, indeed, too brief to be of much value. More than half the bulk of the book is taken up by 15 pages of excellent illustrations, most of them in colours. The normal appearances are illustrated as well as the pathological, and this "Atlas of Rectoscopy" should be found very useful as a guide for those who are beginning an acquaintanceship with the rectum.

Oto-Rhino-Laryngology.

For the Student and Practitioner. By Dr. Georges Laurens. Authorised English translation of the second revised French edition by H. Clayton Fox, F.R.C.S. Irel. With a Foreword contributed by J. Dundas Grant, M.A., M.D., F.R.C.S. Bristol: John Wright and Sons. 1919. With 592 illustrations. Pp. 339. 17*s.* 6*d.* net.

Clinical teaching in oto-rhino-laryngology in France appears to be in much the same state as in this country, otherwise neither this book nor its translation into English would have been needed. It is an attempt, and should be a very successful one, to interest the practitioner in these subjects, to persuade him not to treat disease of these regions without examining the parts affected, and to show him how to make the necessary examinations. The book is on somewhat original lines; each section on treatment begins with a paragraph on "what to avoid," and is followed by "what to do." Elaborate illustrations are absent, but it abounds in excellent line drawings and diagrams, some of them, as the author says, "almost puerile in their simplicity, which have been inserted in order to visualise and fix the mental picture." The writing is concise and, as perhaps must be in a work of this kind, exceedingly dogmatic. It is also very uneven; thus, while much space is devoted to the detection of deafness simulated by malingerers, a subject usually outside the duty of the general practitioner, no mention whatever is made of the testing of ordinary cases of deafness with the tuning-fork to distinguish middle-ear from labyrinthine deafness, which is much more often required and is quite easy to do. A great deal of attention is given to balneological treatment, which is not greatly in vogue for these diseases in this country. There is a relatively very long description of respiratory and gymnastic exercises.

As would be expected in a book reflecting French practice, general anæsthesia is not advised in a large number of operations in which it is regularly used in England, this being due to the fact that the science and art of anæsthetics is in a less progressive state on the continent than among the English-speaking peoples. Of "tonsillotomy for practitioners," it is said, "never employ the guillotine"; morcellement is the method advised, and Dr. Laurens appears to believe that the entire tonsil is easily removed by this method, and says: "Anæsthesia—in the young child: let him be firmly held by an assistant; in adults and reasonable children above the age of 8 or 10 years, local anæsthesia." It will be seen that the English family doctor will not be wise to follow all the advice given in this book implicitly. Even more open to criticism is the statement on malignant disease of the tonsil that "treatment = 0, especially no surgery." In short, the work being dogmatic, statements can be found which should be qualified and taken as a whole, when the practitioner will find much to stimulate his interest in a group of subjects of great importance in general practice, and the specialist, too, may get help from the pithy descriptions and clever diagrams to enliven his clinical teaching. The translator's work has been well done; it would have been more useful to the average doctor if the prescriptions had been given in imperial as well as metric measures and, especially, if certain drug names, such as guipsine and goudron, unfamiliar here, had been explained.

Diseases of the Throat, Nose, and Ear.

For Practitioners and Students. By W. G. Porter, M.B., B.Sc., F.R.C.S. Edin. Third edition, fully revised under the editorship of A. Logan Turner, M.D. Edin., F.R.C.S. Edin. Bristol: John Wright and Sons. 1919. With a photogravure portrait of Major Porter and 79 illustrations, 44 of which are in colours. Pp. 300. 12*s.* 6*d.*

We welcome the third edition of this excellent little manual. The first edition was produced in 1912, the second edition was brought out by Dr. P. McBride in 1916, during the absence on active service of the author, who was killed in action on June 8th, 1917; and now a third edition has been prepared as a pious contribution to his memory by his old friends and former colleagues in Edinburgh. Dr. Logan Turner has revised the chapters on Diseases of the Larynx and the Nasal Accessory Sinuses, Dr. J. S. Fraser has amplified those on Suppuration of the Labyrinth, Nerve Deafness, Chronic Catarrhal Deafness, and Otosclerosis, while a useful description of vestibular tests has been contributed by Dr. J. Milne Dickie. The alterations are few, and we have here a first-rate text-book of its size and scope, well written, well printed, and well illustrated.

The Microscopic Anatomy of the Teeth.

By J. Howard Mummery, D.Sc. (Penn.), M.R.C.S. London: Oxford University Press. With 243 illustrations. Pp. 382. 25*s.*

During recent years Mr. Howard Mummery has contributed several valuable papers to the Philosophical Transactions of the Royal Society, and no one is better fitted to write a text-book on the subject, for he has taken the trouble to investigate every branch of it, confirming or rejecting statements which have been generally accepted; and while he gives a clear account of his own views, he is chivalrous in describing the views of others.

In the introduction he gives a concise account of the functions of teeth and modern views on heredity. The first chapter deals with the development of the teeth, and contains a lucid description of the theories which have been formulated to account for the evolution of the human molar teeth. The two following chapters are devoted to the enamel, and the structure and development of this tissue in the animal kingdom is graphically described. Attention is directed to the view of Smreker that "the majority of the prisms in human enamel are not rounded or polygonal in transverse section, but have an arched form owing to the prisms being longitudinally grooved and fitted into one another." The author supports this view, and gives several drawings from teased preparations made from the enamel of the elephant, so showing in a conclusive manner that not only do the prisms interlock, but that they are connected by bridges, traversing the interprismatic substance.

The chapter on the dental pulp is very significant, because for the first time in any text-book the distribution of the nerves of the pulp is clearly set out. The medullated nerves which enter the pulp cavity through the apical foramina lose their medullary sheath and neurilemma in time, and give rise to a brush- or fan-shaped expansion of delicate fibres, and form a plexus beneath the odontoblast region. At the lower margin of this layer the delicate nerve fibres of the plexus form synaptic connexions with nerve end-cells which are present in a distinct row among the odontoblast cells. These nerve end-cells are provided with a distal process or axon, which is unbranched and passes direct to the dentine, where it enters the dentinal tube in company with the dentinal fibril. The other processes or "dendrons," given off from the peripheral portion of the nerve end-cells, pass to the odontoblast cells to form a delicate network around them forming synaptic communications with the dendrons of neighbouring nerve end-cells. This mode of distribution of the nerves of the pulp appears to be peculiar to the teeth, as such a mode of termination of sensory fibres in "end-cells" is not met with in other organs.

There are chapters on the dentine cement, Nasmyth's membrane, the periodontal membrane, the attachment of teeth, horny teeth, and the tooth follicle and its connexions. This last chapter contains original observations, for Mr. Mummery has shown that the sheath of Hertwig is not a continuation of the enamel organ, but is a prolongation of other epithelial cells in the follicle which lie to its outer side, these cells moulding and determining the dentine of the root. We congratulate the author on his excellent work.

Practical Biology.

The Cambridge Note Book for Practical Biology (Zoology). Sixth edition. Edited by J. STANLEY GARDINER, M.A., F.R.S, and L. A. BORRODAILE. M.A. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 76. 5*s.*

ON the principle that a student must make a personal examination of each of the animals he is required to know, this note book is intended to help in the examination of a few type animals, which include the frog, amœba, vorticella, hydra, earthworm, crayfish, cockroach, amphioxus, dogfish, rabbit, and fresh-water mussel. The skull of the dog and the heart of the rabbit are included in the typical subjects. The only illustration is a bold and useful one, showing the general anatomy of the frog. Of histology there is little, and it is very elementary. Brief instructions are given at the top of each page (quarto) and the remainder is left blank for the corresponding drawing by the student. No doubt it has proved useful to the Cambridge student, as is shown by the fact that this is the sixth edition.

The Margaret Book.

By ALFRED CLARK, F.R.C.S., N.Z.M.C. London: John Lane. 1919. Pp. 189. 5*s.*

THE love story of Margaret and Peter, written partly in verse and partly in prose. The story is quite light and serves merely to string together the verses, which are musical and pretty, if they reach no great heights. The introduction of Margaret's illegitimate sister in the last chapter of the book is an inartistic lapse which we fail to appreciate.

A Medley of Verse.

By F. BARBER WELLS, M.B. London: W. H. and L. Collingridge. 1919. Pp. 106. 2*s.* 6*d.*

A COLLECTION of verses, grave and gay, illustrating the author's love of the sea and the countryside. The volume includes a selection of poems from Dr. Barber Wells's "Roll of the Drum," which, now out of print, received a favourable reception on its first appearance, and is still in request.

Wheels, 1919.

Fourth Cycle. Edited by EDITH SITWELL. Oxford: B. H. Blackwell. Pp. 104. 6*s.*

THIS little book needs neither preface nor apology, for its pictorial covers inform us (1) that the authors are among the moderns, and (2) that they rarely hit the bull's-eye. So criticism is disarmed in advance. As a matter of fact, the authors scarcely do themselves justice. They are not so very perverse, and much of their work is quite first-rate and undeniably beautiful. Sherard Vines, especially in The Soldier's Last Love, and Wilfred Owen, whose untimely death we sincerely deplore, have done excellent things. Mr. Aldous Huxley, whose cleverness is beyond doubt, in The Betrothal of Priapus reveals a distressing dyspepsia, which is at least one of the conventional attributes of the poet. In one way or another the remaining contributors have achieved success. Where they fail it is often just from excess of zeal, and our homely advice to them is "Don't press; it's the swing that does it."

We are sorry about the appendix.

JOURNALS.

Parasitology. Edited by GEORGE H. F. NUTTALL, F.R.S. Vol. XII., No. 1. January, 1920. C. F. Clay, Cambridge University Press. 15*s.* net; yearly subscription £2 5*s.*—The opening article on Coloration in Ticks, II., by G. H. F. Nuttall, contains two very beautiful coloured plates representing several species of ticks figured for the first time from the living specimens; these include *Dermacentor venustus*, the carrier of Rocky Mountain fever. It is shown in this article that the colour of ornate ticks may change after a prolonged period of parasitic life.—Professor Nuttall, writing on Regeneration of the Mouth-parts and Legs in Ticks, gives a detailed record of his experiments, and comes to the conclusion that the mouth-parts and legs of immature stages of ticks may regenerate more or less completely when amputated shortly after the ticks have abandoned the host in a fully engorged condition. The power of regeneration in ticks is very important in connexion with their maintenance in nature, where they are frequently injured, and this power is greater in *Ixodidæ* than in *Argas persicus.*—An article by Charles L. Boulenger contains a list of nine species of nematodes living in the donkey and the description of two new species, *Strongylus asini* and *Cylicostomum adersi.*—Philip Manson-Bahr and N. Hamilton Fairley contribute most interesting observations on Bilharziasis among the Egyptian Expeditionary Force, made in 1916–1918, when large numbers of troops were stationed in heavily infected districts. As to the life-history of Schistosomidæ, this paper contains a striking confirmation of the work of Japanese authors, of Leiper and other investigators; it corroborates, also, the results of the recent Bilharziasis Mission in Egypt. There are two forms of bilharziasis in Egypt: (1) the rectal form, produced by *Sch. mansoni*, and (2) the urinary form, produced by *Sch. hæmatobium*. The two parasites differ in life-history and structural development. In *Sch. hæmatobium* the terminal-spined eggs are deposited in excreta (urine and fæces); on reaching the water the ciliate miracidia hatch, and in a period not exceeding 36 hours have to find the intermediary host, a snail of the genus *Bullinus;* the miracidium penetrates into the snail and becomes transformed into an elongated sporocyst, which by budding produces the cercaria. The latter are ejected again in water, where they move actively, and within 24 hours have to penetrate into their final host, usually man, who is invaded either through the skin (during bathing or paddling in the infected water) or through the upper part of the alimentary tract (in drinking the infected water). The parasites finally make their way to the portal veins, where they become adult, male and female. In the case of *Sch. mansoni*, the miracidia hatching from the lateral-spined eggs, penetrate another species of snail of the genus *Planorbis.* The authors produced both forms of bilharziasis in several monkeys via the skin or upper alimentary tract, and noticed a marked pruritus, and, in a few cases, definite skin rashes following the penetration of cercaria. Itching, which did not persist more than 48 hours, or even a rash was observed on boys collecting snails in heavily infected waters. They confirmed experimentally: (1) that *Planorbis* is never infected by the miracidia from terminal-spined eggs (of *Sch. hæmatobium*), nor *Bullinus* with the miracidia from lateral-spined eggs (of *Sch. mansoni*); (2) that cercaria from *Bullinus* transform only into *Sch. hæmatobium*, while those from *Planorbis* only develop in *Sch. mansoni*. Methods of prophylaxis recommended are: (1) destruction of ova in excreta before they reach water; (2) destruction of the intermediary hosts (snails, *Bullinus contortus*, *B. dybowski*, *B. innesi*, and *Planorbis boissyi*); (3) purification of contaminated water-supplies. All these recommendations are very difficult to realise in practice. They strongly advise a microscopical examination of fæces and urine of all persons returning from an infected country (Egypt) to an uninfected one (Australia or India), because the only means of preventing the introduction of this disease into other countries is to confine the carriers of schistosome ova to a limited area, where their excreta would be incapable of reaching any water-supply containing a suitable intermediary host. Finally, the paper contains: (1) a good morphological description of various stages of both parasites, *Sch. hæmatobium* and *Sch. mansoni*; (2) an account of the distribution of molluscan hosts and of their seasonal infectivity; and (3) an investigation of the Sweet-water canal, which was the source of infection amongst Australian and Imperial troops.—An article on Human Intestinal Protozoal and Helminthic Infections observed in Malta, by Thomas Bentham, represents the results of two years' examination of the stools of patients stationed in Malta. 7325 examinations were made of 3370 patients belonging to the four following groups: (1) Troops sent from Salonika Hospital to Malta; (2) garrison troops; (3) troops on their way out from England or France; and (4) prisoners of war. These observations illustrate the endemic nature of amœbiasis in Malta.—D. Keilin writes on a New Saccharomycete *Monosporella unicuspidata* gen.n. nom., n.sp., parasitic in the body cavity of a Dipterous larva (*Dasyhelea obscura*, Winnertz), and gives a description of a new saccharomycete belonging to the genus, the only other species of which was described by Metchnikoff (1884) in connexion with his earlier observations on phagocytosis.—The last paper of this number is on the Occurrence of a Supplementary Chromatic Body in *Maupasella nova* Cépède (Ciliata Astoma), an Intestinal Parasite of an Earthworm (*Allolobophora caliginosa* Savigny), by D. Keilin. The chromatic body referred to is probably derived from the condensation of the extranuclear chromatin.

The British Journal of Children's Diseases. Vol. XVI., October to December, 1919. Edited by J. D. ROLLESTON, M.D.—In an article on Poliomyelitis and Polioencephalitis Dr. Edmund Cautley describes a group of seven cases of affections of the nervous system which were admitted to the Belgrave Hospital for Children within less than a month from different parishes in the neighbourhood. The cases are of interest to the practitioner as regards diagnosis and prognosis, and to the pathologist and epidemiologist as regards the close connexion between poliomyelitis and encephalitis, and the possibility of an endemic outbreak of these diseases. The cases described occurred in children aged from 13 months to 7 years, and were examples of acute poliomyelitis (two cases), polioencephalitis (three cases, one of which was of the lethargic type), encephalitis (one case), and basal meningitis (one case). Dr. Cautley points out that the difficulties in the accurate diagnosis of such cases are very great, even in hospital, where they are generally admitted after some days' illness, and are under careful examination afterwards, while in private practice the difficulties may be insuperable. He regards the reflexes taken in conjunction with the other symptoms as the chief factors of value in differential diagnosis. Examination of the cerebro-spinal fluid may give assistance, but sometimes the fluid cannot be obtained on lumbar puncture, and occasionally the degree of illness hardly warrants the exploration.—Dr. F. Parkes Weber and Mr. T. H. Gunewardene relate the Sequel of the Case of Lipodystrophia Progressiva which they showed at the Section for the Study of Disease in Children of the Royal Society of Medicine on Jan. 24th, 1919, a microscopical report by Dr. H. M. Turnbull being appended. The patient, a girl, aged 13, had died from pyæmia following mastoid disease. The necropsy showed that the body was much wasted. Fat was practically absent on naked-eye examination from the subcutaneous tissue of the upper part of the body. There was no evidence of tuberculosis anywhere. The thyroid gland was rather large, and on naked-eye and microscopic examination was found to be very rich in colloid material. The thymus was represented by a scanty remnant. The brain did not appear in any way diseased, and microscopical examination of one ovary, the pituitary gland, and both suprarenals showed nothing special.—In a paper on School Dental Clinics and their Management, Mr. C. E. Wallis discusses the question of school dental inspection, including the ages at which it should begin, the place where it should be carried out, the proportion of anæsthetic sessions, the choice of the dental surgeon, anæsthetist, and nursing staff, and the appointment of a supervising dentist.—Under the heading of Society Intelligence readers will be glad to see a résumé of the proceedings of the Société de Pédiatrie de Paris, whose meetings have been interrupted for four and a half years. The abstracts from current literature are devoted to diseases of the respiratory system, tuberculosis, and surgery.

Brain. A Journal of Neurology. Vol. XLII., Part 3. London: Macmillan and Co.—This number of *Brain* consists of two papers—one by Dr. Carmalt Jones on War Neurasthenia, Acute and Chronic, and the other by Dr. Kovy of Groningen on Hyperglycæmia in Mental Disorders. The former paper is a personal record of war experiences in the care and treatment of cases of neurasthenia, and the outcome of these experiences is a forcible plea for the intelligent and sympathetic but yet firm treatment of the conditions. War neurasthenia, Dr. Carmalt Jones is inclined to believe, in its various phases—fatigue, loss of control, and visceral disturbance—is to be ascribed to exhaustion of, or intoxication with, the products of the ductless glands, and especially to over-stimulation or exhaustion of the adrenals. The hyperglycæmia and occasional glycosuria in these cases would thus be explained. He has valuable suggestions to offer for the organisation of the methods of treatment. The second paper by Dr. Kovy discusses the significance of sugar in the blood both as a cause of mental disorder and a result. He has made many observations, and concludes that hyperglycæmia may occur with any emotional state in mental disorders, and that emotions, especially of a depressing character, may cause a temporary hyperglycæmia, and even glycosuria, in normal persons. Glycosuria has been also found to occur in animals as a result of fear or anger, and Dr. Kovy concludes that in all the degenerative psychoses in which is found unexplainable variability of mood, the deeper cause may be sought for in the animal world. It will be seen from this brief summary that valuable and suggestive points occur in both these papers, each of which is in some degree complementary to the other.

Discovery. London: John Murray. Price 6*d.*—We announced in our issue of Nov. 1st, 1919, that as a result of a conference called early in that year by the Presidents of the Royal Society, the British Academy, and other important bodies, it was decided to publish, not for profit, a popular monthly journal, in order to keep the public informed of the progress of knowledge in all branches. The first number (January) contains an interesting series of contributions from writers eminent in their subjects. Professor R. S. Conway sends an article (first instalment) on the Secret of Philæ; the Master of Balliol, Mr. A. L. Smith, one on Discovery and Education; and of medical interest is an essay by Professor T. H. Pear on the Modern Study of Dreams. Science in its application to recent warfare is interestingly presented in such articles as Smoke Screens at Sea, by Dr. Slater Price, and Sound-Ranging in War Time, by A. S. Russell. The various contributions are a striking example of the art of writing to the level of the man of general rather than special training or education, while remaining scientifically sound. The writers do not employ the language of their specialism, but that simpler tongue which, to quote the Editor, "we plain men do understand—namely, English." An important feature of the journal is that references to literature on the subjects dealt with are given when possible at the foot of each article, thus enabling a reader, whose interest has been attracted, to pursue the matter further.

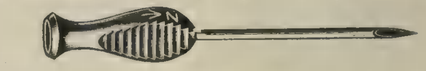
Military Surgeon. December, 1919.—Although the usefulness of physical therapy has long been recognised by the medical profession, the experiences of the war have emphasised its merits from the preventive, curative, and remedial standpoints. Physical education, as preventive physical therapy, demonstrated its value during the war. Surgeon Commander K. Digby Bell, R.N., in an address delivered before the Royal Society of Medicine, and published in THE LANCET of Jan. 31st, urged the country's need of a more comprehensive and a better organised system of physical education, and, moreover, insisted that it was up to the medical profession to see that it got it. But perhaps the fullest account of the results and potentialities of physical therapy is given in a paper on the Importance of Physical Therapy in Military and Civil Practice, read by Commander W. Seaman Bainbridge, Medical Corps, U.S.N.R.F., at the annual meeting of the Association of Military Surgeons of the United States held in St. Louis, Oct. 13th and 14th, and published in the issue of the *Military Surgeon* under notice. Bainbridge goes further and considers physical therapy of importance for physical conditions and disabilities as well as for many functional disorders. He points out that industrial warfare is responsible for a large annual toll of injured persons, and suggests that both civilian and military hospitals in time of peace shall have departments of physical therapy fully equipped, so that they may be utilised, not only for the treatment of the injured, but to secure a maximum of physical efficiency among the general population, and may be made readily adaptable in the event of war. However, it is obvious that the equipment of a hospital for physical therapy is by no means all that is needed for the proper working of a new department. There must be a sufficient supply of skilled exponents of physical therapy, or such treatment will be worse than useless. Captain E. A. Bott, C.A.M.C., of the Military School, Hart House, Toronto, made certain proposals designed to overcome this difficulty in a paper read before the International Conference on the Rehabilitation of the Disabled, held in New York, March 18th–21st, 1919. He drew attention to the fact that if physical therapy was to be conducted with success lay workers must be trained in passive and active movements and in various forms of applied exercises. There is complete agreement among medical men as to the beneficial effects of some forms of physical therapy, and all appear to be of one mind respecting the need for skilled exponents thereof, working under the supervision of specially qualified medical men. The suggestions made by Commander Bainbridge are thus timely and worthy of consideration.

Fifth and Sixth Annual Reports of the Ophthalmic Section, 1917 and 1918. By the Director of Ophthalmic Hospitals. Cairo: Government Press. 1919.—Thirteen permanent ophthalmic hospitals have been built in Egypt since 1906. These are now at work and are aided by four travelling hospitals. There were 81,529 new patients in 1917 and over 1,000,000 attendances, the number being slightly greater in 1918. 13·9 per cent. of all the patients examined were blind in one or both eyes. The cause of blindness in most cases was not trachoma but acute conjunctivitis. Of the operations performed, fully one half were for the relief of trichiasis and entropion. The reports include Dr. MacCallan's tables showing the relation between the incidence of gonococcal and other forms of conjunctivitis and the temperature curve.

New Inventions.

IMPROVED "606" NEEDLE.

THE needle illustrated below is made of nickel, and consequently takes a high polish and keeps a good point. It has a stout bore, which has many advantages in routine work, shortening the time fluids require to pass through it and obviating all chance of clotting of blood during the taking of Wassermann specimens, as blood flows easily through it. The needles are also more easily cleaned inside. The head or "butt" is made of the shape shown in the sketch; on two opposing faces are series of corrugations for improving the grip, and on another face is a small arrow to indicate the plane of the bevel point (the bevel is always kept on this plane when resharpening, so that the needle is always held in the same way when giving injections). These needles are so arranged that the corrugations fall naturally under the first finger of the right hand, while the arrow face of the head, and consequently the bevel point, are directly "upwards," as this seems the best position for insertion into the vein. The rounded butt makes it a very simple matter to slip a small rubber tube over the end for taking Wassermann specimens, difficult when the square-headed needles are used, and necessitating much thicker tubing. The calibre of this butt is standard and fits the Record syringe and Harrison's tap.

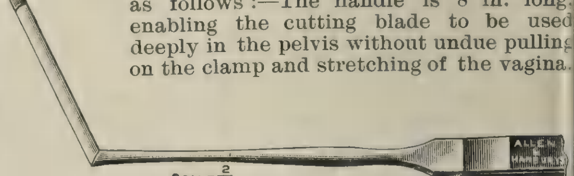


The needle is made for me by the Medical Supply Association, Limited, Holly-street, Sheffield.

Sheffield. E. F. SKINNER, M.A., M.B., M.R.C.P.

THE VAGINOTOME.

ONE of the more difficult steps in Wertheim's radical hysterectomy for carcinoma of the cervix is the final division of the vagina, after the application of the Berkeley-Bonney T-shaped vaginal clamp, preparatory to the removal of the uterus from the body. To overcome the difficulties consequent upon the use of scissors or a scalpel I have devised a vaginotome, here illustrated, the chief features of which are as follows:—The handle is 8 in. long, enabling the cutting blade to be used deeply in the pelvis without undue pulling on the clamp and stretching of the vagina.



SCALE $\frac{2}{3}$

The knife is set at an obtuse angle on the handle, allowing the operator to cut horizontally under the clamp whilst holding the handle vertical, and also slightly tilted. Thus the tendency while cutting across the vagina will be to cut close to the clamp instead of more deeply, to a lower level of the vagina where the bladder may still be adherent. The instrument also carries a blunt bistoury end to safeguard the rectum from being wounded behind. The use of this knife gives a perfectly clean section through the vagina without the ragged appearance that often follows the use of curved scissors or ordinary knife, and renders this step in the operation easy, for it is unnecessary to put heavy traction on the clamp when making the section.

The vaginotome is made for me by Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W.

Harley-street, W. ALECK W. BOURNE, M.B., F.R.C.S.

WESTON-SUPER-MARE HOSPITAL.—The wa memorial of Weston-super-Mare is to include a new women' ward, containing 7 beds, with accommodation for nurses The cost of the scheme is £3000.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 21, 1920.

Tuberculosis and Residence.

While our present-day housewife has been charged with a lack of proficiency in housecraft, when compared with her continental sisters, there is no doubt that in this country as in other countries the family is the economic and economical unit of society. To break up the family, and to shelter one member of it in an institution, apart from dire necessity, is to incur an entirely disproportionate expense for an individual, and this can hardly be justified to tax- or rate-payers in the times immediately ahead of us. There are two essential elements in the economical running of a household. One is the mutual adjustment of tastes, celebrated in a familiar nursery rhyme, so that one member takes what the other leaves; the other is a deeply-rooted instinct to keep down expenses within the limits of the family budget. Both of these safeguards are soon lost in any form of institutional life, with far-reaching economical consequences. In view of these considerations, the indefinite extension of sanatorium and training-colony treatment for tuberculosis, however ideally desirable, must be regarded as very difficult at the present time. Fortunately, a larger view of tuberculosis is beginning to prevail, and it is getting to be recognised that institutional treatment has its chief purpose in education, and should be limited to a brief period of tuition in the manner of life suitable to the tuberculous individual.

With one proviso. That the individual, having learned what manner of life he should lead, returns to conditions where he can carry it out. Sufficient food, hygienic environment, and the absence of economic strain, these are the three essential factors which must be on the side of the individual who is putting up a life-long struggle against tuberculosis. And the greatest of these is the last. In the modern factory, as Mr. P. C. Varrier-Jones, among others, has reminded us, if the pace of an operative is slackening, or if he is weak in his attendance, the whole shop is thrown into a state of confusion. The tuberculous worker is either a nuisance to his employer, or risks his health by an attempt to keep up to an impossible standard. But surely it is not beyond the reach of human endeavour to set up special conditions for workers who are incapable of rush against time, and to provide remunerative employment while doing away with the economic struggle—the rock on which so many consumptives are wrecked. Mr. Varrier-Jones has recently idealised a tuberculosis colony as a community of consumptives in which hygienic and economic factors have been adjusted to suit the abnormal physical and mental state of its members. The tuberculous subject must work, and the first practical consideration is to make conditions under which he can work to the full extent of his powers. The recent special report on tuberculosis by Dr. John Robertson, medical officer of health for Birmingham, makes it clear that in Birmingham at least it is not the home environment which is chiefly at fault. The mortality-rate in the decade of highest working efficiency (ages 35 to 45) was 4·5 per 1000 for males and only 1·6 per 1000 for females, and yet, as Dr. Robertson points out, women at these ages spend far more time in the dwelling house than do the men. In his address at Cardiff, reported in our present issue, Dr. T. D. Lister heralds the dawning of the idea that we must try to provide such conditions of life and labour as would render the expensive sanatorium unnecessary. And at the moment the conditions of labour seem most in need of reform, a view that deserves all prominence, for it precludes the relegation of measures for the control of tuberculosis to that day when housing conditions shall be perfect. The intimate association between bad housing and the spread of tuberculosis is too often used as a cover for indefinite delay in preventive measures.

On p. 457 of our present issue Dr. F. Stanley Tinker, tuberculosis officer for North-East Surrey, outlines a scheme for the post-sanatorium employment of the consumptive ex-soldier which meets some of the chief difficulties. The scheme includes both training and permanent employment. So long as they are undergoing training the men would be in receipt of a training allowance from the Ministry of Pensions, and the financial burden of the experiment would be thereby relieved. The municipal workshop, which Dr. Tinker suggests, is to serve the requirements of the discharged ex-Service men in a population of 75,000, and would provide 40 to 50 benches in two workshops, one for training and one for permanent employment. Assessment of hours of work is to be regulated by a medical officer, presumably the local tuberculosis officer, on a strictly individual basis, the man receiving the trade-union rate of wages for each hour of his work, irrespective of the actual amount turned out. The manager in control of the business side of the shops would see to the carrying out of the medical officer's instructions. Dr. Tinker makes large claims for his scheme, the most reasonable of which is that it will not work against any existing proposals, but rather be an adjunct to any of them. The municipal workshop certainly deserves consideration, and especially because it brings the human side of preventive medicine into contact with public affairs. The problem in respect of the tuberculous subject is seen to be the transformation of a weakly member of the community into one who can shoulder his burdens despite his drawbacks.

The Blockade and the Food-supply of Germany.

THE following tabular statement reveals the population of the former German territories in 1911 and 1919:—

Population in Thousands of Persons—1911 and 1919.

Age.	Population.		Increase or decrease.	
	On 1/12/1911 (calculated from Census of 1/12/1910).	On July, 1919 (preliminary estimate of Imp. Statist. Off.).	Absolute.	Per cent. of Col. 1.
	1	*2*	*3*	*4*
0–1	1663·2	838·5	−824·7	−49·6
1–2	1558·4	755·9	−802·5	−51·5
2–3	1589·1	845·9	−743·2	−46·8
3–4	1561·3	1093·7	−467·6	−29·9
4–5	1545·5	1424·8	−120·7	−7·8
0–5	7917·5	4958·8	−2958·7	−37·4
5–6	1490·1	1474·5	−15·6	−1·0
6–7	1501·6	1544·0	+42·4	+2·8
7–8	1448·4	1489·3	+40·9	+2·8
8–9	1503·2	1545·7	+42·5	+2·8
9–10	1452·4	1493·3	+40·9	+2·8
5–10	7395·7	7546·8	+151·1	+2·0
10–15... ...	6918·4	7268·7	+350·3	+5·1
15–19... ...	5080·1	5553·8	+473·7	+9·3
19 & over:				
Male ...	18362·1	17575·4	−786·7	−4·3
Female...	19318·4	21210·6	+1892·2	+9·8
Both ...	37680·5	38768·0	+1105·5	+2·9
Total population ...	64992·2	64114·1	−878·1	−1·4

Proportion of Each Age-Group per 1000.

0–1	25·6	13·1	−12·5	−48·8
1–2	24·0	11·8	−12·2	−50·8
2–3	24·5	13·2	−11·3	−46·1
3–4	24·0	17·0	−7·0	−29·2
4–5	23·8	22·2	−1·6	−6·7
0–5	121·9	77·3	−44·6	−36·6
5–6	22·9	23·0	+0·1	+0·4
6–7	23·1	24·1	+1·0	+4·3
7–8	22·3	23·2	+0·9	+4·0
8–9	23·1	24·1	+1·0	+4·3
9–10	22·4	23·3	+0·9	+4·0
5–10	113·8	117·7	+3·9	+3·4
10–15 ...	106·4	113·4	+7·0	+6·6
15–19 ...	78·2	86·6	+8·4	+10·7
19 & over:				
Male ...	282·5	274·1	−8·4	−3·0
Female...	292·2	330·9	+33·7	+11·3
Both ...	577·7	605·0	+25·3	+4·4
Total ...	1000	1000	—	—

The figures are based on the preliminary estimate of the German Imperial Statistical Office, and behind their terrible story lies this message: a five-year age-group of German population drops out, and by so much the German can be regarded as a less menace to the peace of Europe. The figures were communicated on Tuesday last by Professor E. H. STARLING to the Royal Statistical Society, in an address infused throughout with the scientific intention to say nothing save on first-class evidence, and to prophesy nothing that was not supported by that evidence. Taken in connexion with the rest of Professor STARLING'S paper, the figures show alike the preponderating part played by our naval blockade in deciding the final issue, and the influences that remain, to the German detriment, as the result of that blockade.

Commencing with an analysis of the figures showing the total amount of food available for human consumption in Germany during the year 1912–13, the conclusion was reached that before the war the Germans were more richly fed than the inhabitants of either England or France. Nor was the bulk of German imports, as far as they could be classified as food imports, ominously large; it amounted to 8 or 9 per cent. of all foodstuffs. But in those imports was an unduly large proportion of the proteins and fats necessary to make up a normally nutritious diet, and herein lay the cause of Germany's undoing. When the blockade began to take effect, about the autumn of 1916, the calorie value of the foodstuffs at the German disposal became insufficient, nor did they contain a due amount of tissue-building substance. The food directly or indirectly derived from importation accounted for 27 per cent. of the total protein of the diet. To some extent this fact was indicated in an authoritative pamphlet published in Germany at the end of 1914, under the editorship of Dr. PAUL ELTZBACHER, Rector of the Berlin High School. This pamphlet, which was abstracted in English in our columns shortly after its appearance,[1] achieved a wide circulation later in translation by Dr. RUSSELL WELLS, under the title "Germany's Food, Can it Last?" While its information did not fail to impress us with the foresight of the German Government in certain directions, there were many physiologists who were able to see that, if a naval blockade could be maintained, Germany must fall through starvation, though the time that such a wearing-down process would occupy might be vastly protracted by superior organisation, economy, and good weather. That none of these factors came to the assistance of the Germans was shown by Professor STARLING in unmistakable manner. German agriculture, starting from a position which had been given an unduly optimistic appearance by the figures of the German Imperial Statistical Office, and suffering under recurrences of unfavourable weather, by the third year in the war was powerless to meet the demands upon it. Chemical manures were wanting, as were concentrated feeding-stuffs for the cattle; farmyard manures lost their value; the production of meat, fat and milk went down; and, lastly, an unfair distribution of what food there was kept the rich man alive at the expense of the poor.

By the fourth year of the war Germany was a beaten country, despite the power of attack and dourness of defence which, we remember only too well, still resided in the armies. Says Professor Starling: "Three years on a diet insufficient as to quantity and quality, indigestible, tasteless, and monotonous, had a marked influence on the vitality and efficiency of the great bulk of the urban population, which finally resulted in that changed mentality which rendered impossible any further efforts of attack or even resistance." This is not to say that the blockade won the war, for the blockade would have been largely ineffective had not the Allied Armies contained and beaten back the German forces. But the moral is that when at last all the resources of the Allies were found in concentration against the Central Empires, hunger, the cruellest weapon, brought the end. The effects of the blockade remain, and medical readers of the tabular statement which we have quoted will recognise that those effects will be active for many years, as disease takes the toll which follows innutrition.

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[1] THE LANCET, Feb. 20th, 1915, p. 389.

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International Medicine.

The League of Nations Council, which met in London on Saturday last, struck out a bold line in several directions, none of which is likely to have more far-reaching consequences than the appointment of a committee to draw up a scheme for an International Health Commission. How pressing is the need for such a Commission hardly requires emphasis. Many diseases hitherto snugly localised in far-away dominions and dependencies have been mobilised by the war, and are likely to remain mobile in view of the new freedom of communication by land and sea and air. Rabies in England and typhus in Paris have brought this to our knowledge. The task of the international commission which visited and reported on the typhus risk on the Russian frontiers last autumn was rendered largely nugatory by the lack of any central authority to carry out the recommendations. The International Health Commission, when it is set up, should find that its work has been facilitated by the General Council of the League of Red Cross Societies which assembles in Geneva on March 2nd. Pride of place has been there given to the department dealing with medical information and publication. There are other signs which show a tendency towards a pooling of health interests. The National Red Cross Society of Czecho-Slovakia has joined the League of Red Cross Societies. Dr. Octave Monod, of the Pasteur Institute in Paris, has accepted the appointment of assistant chief of the department of tuberculosis under the League, and his experience should be invaluable. Sweden is organising a mobile antityphus hospital of a hundred beds.

We commend this stirring of the waters to Dr. F. F. Simpson, of Pittsburgh, who visited London last week in connexion with a proposal to form a World Congress of Physicians and Surgeons, and who is now in Paris after paying a flying visit to Brussels. At the meeting of representatives of the various specialties in medicine and surgery called last Friday at the Royal Society of Medicine to meet him, Dr. Simpson urged the need, for the benefit of mankind, of forming an international medical council on which every country should be represented. The American view, which he was authorised to set forth, is that each international organisation should forthwith make such adjustments as would permit of a prompt resumption of international activities. He stated that France, Belgium, and Italy had expressed general approval of the scheme, and he proposed that Great Britain and the United States should join these countries in appointing two representatives each on a special investigation committee to meet in Paris next month. The Royal Society of Medicine, while expressing sympathy with Dr. Simpson's objects, felt bound to admit that there were at present a number of specialties without any international organisation, and it was therefore resolved to meet again after obtaining the views of the constituent sections of the society. We can hardly doubt that the verdict will be in favour of using to the full the place of medicine as international reconciler.

Annotations.

"Ne quid nimis."

THE CONSULTATIVE COUNCIL ON GENERAL HEALTH QUESTIONS.

This Council, appointed under the Ministry of Health Act, held its first meeting last week. The Minister of Health, Dr. Addison, who was accompanied by Lord Astor, Parliamentary Secretary to the Ministry, presided, and asked the Council to put before him a statement of the main defects in existing provisions for safeguarding the health of the people, and to suggest remedies from the standpoint of persons who as members of the general public will be affected by the health services supervised by the Ministry. The members of the Council have been appointed with this special purpose in view. Women form a majority of the membership. Lady Rhondda will act as chairman and Mr. Arthur Greenwood as vice-chairman. The other members are as follows: Mrs. Aspinall (United Textile Factory Workers' Association), Councillor C. Aveling (Past-President of the National Chamber of Trade), Mrs. F. Harrison Bell and Miss Margaret McMillan (Labour Party), Mrs. Burke and Mrs. Hood (Women's Coöperative Guild), Mr. George Goodenough (Parliamentary Committee of the Coöperative Congress), Mrs. Ogilvie Gordon, D.Sc. (President of the National Council of Women of Great Britain and Ireland), Mr. W. L. Hichens (Chairman of Messrs. Cammell, Laird and Co., Ltd.), Mr. W. Littler (Civil Service Alliance), Mr. Samuel Lord, F.S.S. (National Association of Local Government Officers), Mrs. Mayo (a member of the Dorsetshire County Council), Mr. F. H. Norman (Professional Workers' Federation), Miss E. M. Phelp (National Association of Domestic Workers), Mrs. Pember Reeves, Lady Edmund Talbot, and Miss Gertrude M. Tuckwell.

A NEW TREATMENT OF COLLES'S FRACTURE.

IT might be thought that the last word had been said on the most common of all fractures, which has been discussed times out of number since it was first described a century ago by Abraham Colles. In the Boston *Medical and Surgical Journal* of Dec. 4th, 1919, Dr. F. J. Cotton, a leading American authority on fractures, gives a new pathology and treatment for this injury. He finds that the bad results often obtained are due to failure to recognise and deal with the backward tilting of the distal fragment. As long as this persists proper reduction of the ulna is impossible, and it is to ulnar luxation rather than to the fracture itself that he ascribes the resulting disability. When the wrist is broken the radius gives way, but the whole damage, according to Dr. Cotton, is best expressed as a rotation backward of the hand about the ulnar head as a fixed point, which tears the ulnar ligaments loose and also breaks the radius. The hand is displaced, with the radial fragment, upwards and backwards, to a varying degree, always with tilting backwards of the lower fragment. After long experience of the accepted manipulations to correct the displacement, it occurred to Dr. Cotton to reverse the mechanism of production. As the ulna is the fixed point about which the hand is displaced, he makes it the fixed point about which he reduces. As the hand is displaced in extension, he reduces it in flexion. As it is displaced in a rotation of supination about the ulnar head, he reduces it in pronation. The older methods of reduction aimed almost entirely at carrying forward of the lower fragment on the upper. For this they are good, and are still used by Dr. Cotton. The new method is, after correcting the obvious displacement of the radius, to carry the hand about the ulnar head as a fixed point into pronation and flexion. This is quite simple. With the hand a little extended, traction and a rocking movement are made so as to free the displaced radial fragment and the dislocated ulna. Then, with the thumb under the ulna, making it a fixed fulcrum, the hand is dragged down into flexion and pronation, traction being maintained at the same time. The finishing movement is a twist of the whole hand about the ulna. The whole may be done as one twisting sweep, rarely needing repetition. For retention the ordinary splints are often inefficient if a first-rate result is desired. Muscle tone holds the fragments against re-displacement in toto, but not against tilting backwards of the lower fragment, especially as there is often much crushed and missing bone at the back edge of the fracture, thus leaving a gap. Tilting can be prevented only by maintaining flexion; this is best done by plaster, preferably applied as strip splints of eight to ten layers of plaster-of-Paris bandage, one on the back from elbow to knuckles, one in front from upper forearm to palm. These are held with a few turns of plaster-of-Paris bandage. The same thing may be done less efficiently with splints provided with an exaggerated pad on the back of the hand and front of the forearm. While the wrist is in flexion the posterior ligaments prevent the radial fragment from tilting backwards, and so long as the ulna is held to the back of the flexed wrist the ligaments can heal to near their normal length. This is important, for their laxity means weakness and often permits subluxation of the ulna with each supination—a common factor in disability. Dr. Cotton finds that this slipping ulna is always undiagnosed. The flexion position need not be maintained more than a fortnight, but if plaster is used it is wise to slit it along one side and keep a careful watch, as the position impedes the circulation. Indeed, the chance of this trouble has prevented Dr. Cotton from publishing the method, long as he has used it. After the flexed position is abandoned, straight splints with the pads described above are used for a third week—never longer except for special reasons. Then a supporting strap of adhesive plaster with a pad in front of the ulna (the ligaments are the last to heal) is worn and changed every three to five days until the hand is strong. Dr. Cotton finds that the hand recovers function more quickly after flexed fixation than after straight splints, though he does not know why.

THE RONTGEN SOCIETY AND RADIOGRAPHIC RESEARCH.

THE exhibition organised by the Röntgen Society, and held at the rooms of the Royal Photographic Society last month (THE LANCET, Jan. 31st), was largely due to the initiative and organising ability of Dr. George Rodman, a past president of the Rontgen Society. At this exhibition an opportunity was given to become acquainted with the enormous strides made during 25 years in every branch of radiographic work. It was, however, an exhibition of finished prints; and only the instructed imagination could picture the corresponding development in the whole technique of radiography, in the intermediate stages, including the introduction of machinery for the production of high-tension current, the improvements in the X ray tube, the skill and ingenuity of the physicist and of the technical expert. We should like to see a further exhibition showing side by side the first apparatus used in radiography in 1896 and an up-to-date model of the present day. The Rontgen Society possesses a collection of X ray tubes illustrating all the steps in the development of this all-important factor in radiography, but so far no effort has been made to provide a display of these improvements in apparatus. The past 25 years have been productive, and it is plausible to suggest that the greatest discoveries have already been made, and that future work will be rather in the nature of improvements in existing apparatus and methods. But since the discovery of X rays paved the way for the no less important discovery of radio-activity, other discoveries may revolutionise our present methods. The tendency of the time is to produce more energy by increasing the size and output of the generating apparatus, and the discovery of a simpler method of producing X rays might do away with the bulky apparatus at present in use. Coördination and research are still needed in all branches of radiography. The application of X rays to industrial problems is likely to become general. The exhibition at the Royal Photographic Society will have served useful purpose if it directs the attention of the public to the need for further investigation and for the whole-hearted support of the efforts of medical men and scientists in this direction. An appeal will shortly be issued for funds to establish a memorial to the late Sir James McKenzie Davidson, and a suitable form for this to take would be the foundation of a Radiological Institute for teaching and research. Attached to the institute should be a historical museum containing collections of apparatus, tubes, and prints, demonstrating the early work and subsequent advances, and the contents of the museum should be constantly kept up to date. Such an institute would become a centre for the coördination of the developments in all branches of radiography—medical, industrial, and scientific.

BLOOD-PRESSURE OBSERVATIONS IN SURGICAL OPERATIONS.

THE first Bulletin of a National Anæsthesia Research Society in U.S.A. deals with the importance of blood pressure observations before and during surgical operation. The systolic and diastolic pressures are taken by the auditory method, using the armlet and snugly binding the stethoscope below it with elastic webbing. Readings can then be taken without disturbing sterile sheets or the continuity of anæsthesia. If the diastolic pressure is between 25 and 75 per cent. of the systolic a case is probably operable, if outside these limits probably inoperable. During operation a 10 to 15 per cent. increase in pulse-rate without change of pressure, or 10 to 15 per cent. decrease in blood pressure without change in pulse-rate, is safe. A 15 to 25 per cent. increase in pulse-rate, with 15 to 25 per cent. decrease in blood pressure, is dangerous. A progressively increasing pulse-rate above 100, with systolic pressure falling to 80 or less, and a pulse pressure (difference between systolic and diastolic pressures) of 20 or less, lasting more than 20 minutes will be fatal. The condition of shock so denoted results in a vicious circle, the low blood pressure and stagnation of blood flow occasioning increasing failure of heart and brain. The anæsthetist must avoid over-dosing the patient in an effort to please the surgeon, who may be demanding a flabby musculature. Relaxation extends to the non-striated muscle, and shock results from hypostatic congestion of blood in the generally relaxed capillaries and veins of the body. Nitrous oxide and oxygen anæsthesia is the best preservative against shock; it does not relax muscle.

BLIND MASSEURS.

THE Association of Certificated Blind Masseurs, registered last July, is now licensed under the Board of Trade. The objects of the Association, over which Sir Arthur Pearson presides, are:—

> To promote the welfare and protect and advance the interests of all certificated and qualified masseurs and masseuses who are too blind to perform work for which eyesight is essential.
>
> To assist and secure the recognition and status of such blind masseurs as aforesaid in and for the purposes of their work.
>
> To provide for such blind masseurs any assistance or advantage calculated to help them to work on terms of equality with sighted masseurs.
>
> To promote coöperation in all matters relating to massage and physical culture between the blind and sighted persons.
>
> To advocate and extend the general use or employment of massage and other physical methods or exercises.

Membership of the Association is conditional on the holding of the certificate of the Incorporated Society of Trained Masseuses—the limitation of title is now too familiar to need comment—or that of the late Dr. Fletcher Little, or such other certificate as may be prescribed by the executive council. The registered office of the Association is at 224–6–8, Great Portland-street, London, W.1.

With the objects of the Association we have the deepest sympathy; and it is eminently satisfactory that care has been taken to provide adequate training for all its members. Far the best way to assist the blind is to render them capable of performing useful and remunerative work, and Sir Arthur Pearson's efforts in this direction have been most successful. There is much to be said for choosing massage as a profession for the blind, though, alas, even here, the blind cannot enjoy all advantages possessed by their unafflicted fellow-workers. Many patients require remedial exercises and re-education as well as massage, and then the blind administrator is handicapped. Unless the limitation is recognised, the blind administrator will be tempted to mete out to patients inferior treatment. Teachers of massage will do well to make this clear to their blind pupils.

SEX DISPROPORTION.

IN one of a series of lectures on Social Unrest, delivered at the Royal Sanitary Institute on Feb. 4th, Dr. R. Murray Leslie marshalled in an arresting manner the facts in regard to sex disproportion and its consequences. He started by suggesting that the numerical preponderance of females over males in England and Wales, amounting to a million and a quarter in 1911, had probably exceeded two millions by the end of the war. The figure is a likely one. Male births, it is true, exceed female births by about 4 per cent., but the mortality among infant boys is so much higher than that among infant girls that even in 1911 the excess of females per 1000 males at all ages was represented by a figure of 68 for England and Wales, while it was 62 for Scotland and only 3 for Ireland. Austria, France, and Germany then occupied an intermediate position with 36, 35, and 26 respectively. From these well-established facts Dr. Leslie went on to deduce social, economic, and national consequences of a momentous nature, associating with the disproportion of the sexes some, at least, of the assumed increase in sexual immorality, the falling off of religious observance, and the decline of the birth-rate in certain elements of the population. He concluded with a classification of women into types, and a suggestion that in racial questions women may become the dominant sex. We agree with Dr. Leslie that his classification may be held by women themselves to be presumptuous, and we distrust the value of the attempts, now so often made, to place men or women into categories in accordance with what are called "types."

COCCIDIOIDAL GRANULOMA.

Coccidioidal granuloma, of which Dr. William B. Bowman,[1] of Los Angeles, recently reported five cases with the X ray findings to the American Roentgen Ray Society, is an acute, subacute, or chronic disease due to infection by a parasitic organism known as the *Oidium coccidioides*. It is sometimes called the Californian disease, as with but three exceptions all the reported cases have lived in or visited that State before contracting the disease, a large percentage of them coming from one district—namely, the San Joaquin Valley. The *Oidium coccidioides*, which is a spherical body varying from 7–30 μ in diameter, consists of an irregular protoplasmic body with a double contoured, highly refractile surrounding membrane or capsule, and multiplies by sporulation. The fungus grows on all types of media. The mode of infection in man is unknown. The naked eye and microscopical pathology, especially in the viscera, is practically identical with that of tuberculosis, and a differential diagnosis can only be made by isolation of the organism. This can easily be done by mixing a drop of pus with a 10 per cent. solution of sodium hydrate on a slide with a cover-slip. Dickson, who collected 40 cases of the disease in 1915, states that a routine examination of cases clinically tuberculous, in which the tubercle bacillus cannot be found, would probably reveal a great many cases of coccidioidal granuloma. The X ray findings in Dr. Bowman's cases closely resembled those of tuberculosis, the peculiar irregular fuzzy appearance of the periosteum being the only distinguishing feature. Treatment was disappointing, no results being obtained by sodium iodide, tartar emetic, copper sulphate, or autogenous vaccines. In the subsequent discussion Dr. M. P. Burnham reported an unusual instance of early diagnosis by aspiration of a joint, followed by immediate amputation of the shoulder. The case was one of the few on record which had not terminated fatally, and suggested that if an early diagnosis was made, and a radical operation performed, a larger percentage of recoveries might be obtained.

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[1] The American Journal of Roentgenology, November, 1919.

REFORMS IN FOOD CONTROL.

IN a leading article in our issue of Jan. 31st we outlined the principal features of the last Report (Medical Supplement) of the Local Government Board (1918–19). In Section 17 of that report Dr. A. W. J. MacFadden deals with the work of inspectors of foods, and his observations claim attention, particularly where he suggests reform. He refers at length to the inadequate methods of meat inspection which have long been under consideration, and in regard to which the special experience gained during the war has, in his opinion, greatly strengthened the grounds for instituting changes. Attention, for example, is forcibly directed to the lack of system in the inspection and the facility which is afforded for the unchecked disposal of cow carcasses for human food. It is pointed out that a very considerable proportion of the cows slaughtered annually in this country are seriously affected with tuberculosis, while under conditions which normally exist in England and Wales only a small proportion of these cows ever come under inspection at the time of their slaughter. It must be borne in mind that, whatever inspection may be given to meat after it has been dressed and cut into portions for sale, it is generally quite impossible to detect whether or not the meat was derived from an animal in a diseased condition. Dr. MacFadden strongly advocates the promotion of public abattoirs and the compulsory closing of private slaughter-houses, a policy which has been recommended in these columns on many occasions. In the summer of 1918 considerable anxiety was shown by a number of medical officers of health as to the soundness and wholesomeness of the frozen meat which was being delivered in their districts. Some consignments were rejected by the local authorities and returned to the distributing centre. Public anxiety on the score of health, reports Dr. MacFadden, was largely allayed by the activity shown by medical officers of health and their staffs throughout the country in protecting the country against danger from this source, and much credit is due to them for the success achieved at a time when the borderline between safety and danger was often ill-defined, and when all the circumstances offered temptation to a policy of chance.

Dr. MacFadden reminds us that the vast quantities of foods required by our armies led to organised inquiry into the sanitary condition of food-preparing premises. This involved literally thousands of visits by the Board's inspectors of foods to such premises of all sizes and descriptions in different parts of the country, and careful records have been kept of the conditions found and of the improvements effected. A survey of these records shows that while in a number of the larger factories work has been carried out under conditions likely to ensure the production of sound and wholesome foodstuffs, in many others, even of this class, the opposite has been the case, while in a large proportion of the smaller factories and food-preparing places the conditions disclosed were unsatisfactory in the extreme. The energies of the department have been deeply drawn upon by war requirements, but the circumstances gave our officials a farther reaching searchlight than they possessed before. Food control should benefit by this.

DINNER TO SIR JOHN MACALISTER.

WE may remind our readers that arrangements have been made to hold a complimentary dinner to Sir John MacAlister at the Connaught Rooms on Thursday, March 18th. The dinner is given by the Royal Society of Medicine in recognition not so much of Sir John MacAlister's knighthood as of his 33 years of devoted service to the Society. Members are allowed to bring guests, and applications for the tickets should be made at 1, Wimpole-street, London, W. 1, to Mr. C. H. Fagge or Mr. A. M. H. Gray, who are acting as honorary secretaries of the dinner committee.

THE number of cases of influenza officially announced in Switzerland in 1918 was 664,463, and in 1919 86,058. In January, 1920, in the Canton of Zürich 650 cases of influenza and 24 cases of encephalitis lethargica were medically reported.

A Board of Enquiry has been set up to bring under review cases of long standing still occupying beds in military hospitals, and to report in detail upon their treatment and disposal. The members of the Board are Mr. H. J. Waring, President, Colonel F. MacLennan, R.A.M.C., Dr. W. E. Wynter, Dr. C. M. Hinds Howell, and Mr. T. H. Openshaw, for orthopædic cases when required.

THE LANCET, Jan. 3rd and 10th, 1920.

THE Manager is grateful to readers who have kindly returned to him their copies of THE LANCET of the above dates. He has been pleased to pay the full price for all copies returned, so far as he has been able to establish the identity of the senders, as he is disposing of the copies again to new subscribers.

THE MUNICIPAL WORKSHOP:

A SCHEME FOR THE POST-SANATORIUM EMPLOYMENT OF THE CONSUMPTIVE EX-SOLDIER.

By F. STANLEY TINKER, B.A., M.B., B.C. CAMB., M.R.C.S., L.R.C.P. LOND.,
TUBERCULOSIS OFFICER, NORTH-EAST SURREY.

IN the light of the experience gained during the eight years since the commencement of sanatorium treatment for the working-class population, it has become increasingly evident that the removal of a patient from his home for a limited period of treatment is not sufficient to bring about a permanent arrest of his disease. Attention has therefore been drawn more and more, in the last few years, to the necessity of finding a means whereby the benefit gained by sanatorium treatment may be consolidated, and a useful citizen produced. That the length of sanatorium treatment is unduly short, and can only be expected to produce arrest of the disease in a small percentage of very early cases is universally admitted; but, on the other hand, it must be understood that two great factors operate to make a very prolonged stay practically impossible for the average town-dweller. In the first place he is willing to stay until he feels well, and after that he cannot understand the necessity of continuing treatment; in the second place, the needs of his dependents, who are gradually exhausting his savings, will force him to return to earn for them. The enormous cost would also have to be taken into consideration if any material alteration in this respect were to be made. The problem has therefore become one of improving our methods of after-care, and the following scheme is suggested to fill a gap in the sequence of the methods at present at our command.

Every consumptive may be considered as reduced in physical capacity by 50 per cent. for at least 12 months after his return from a sanatorium. If he is fortunate enough, on his discharge, to secure suitable light work which is well within his physical capacity, he may increase his ability to 75 per cent. of the normal, and even eventually, at that particular trade, to 100 per cent. This applies to a certain number of the best cases only; many have achieved this standard in spite of no provision being made for them. There is, however, a larger percentage for whom there is no such hope: either they must remain idle and starve, or they must do full work with the consequent grave risk of relapse. Even in the case of the discharged soldier, for whom provision in the form of pension has been made, there is the same difficulty, for, although not faced with starvation, idleness, which is only possible to the lowest type, soon becomes unbearable and, in spite of advice, he takes unsuitable work and frequently relapses. That colonies, where the men may eventually migrate with their families, will help a great many of these men to lead useful lives is quite evident, and as a link in the chain they will be an enormous asset, but unless we are prepared to multiply them to an enormous extent they will but touch the fringe of those requiring some such assistance. In this connexion we must not forget the psychology of the average working man whose mentality will hardly rise to the necessity of the migration, and who will always prefer to remain in his urban surroundings. The following outline is for a scheme, suitable for any township, to provide, in conjunction with other after-care, work of a suitable kind in special workshops within easy access of the patients' homes, and under medical supervision.

The Scheme.

The workshops would be divided into two parts. One part to provide training in suitable occupations which could afterwards be carried on in the second part, or permanent workshop. These should be erected on some site, chosen with a view to its accessibility from the urban districts by tram, bus, or rail; both from the point of view of the men employed, and also for the transport of the materials handled in the workshops. In the case both of the training centre and the permanent employment section the conditions and hours of work would be regulated by the medical officer in charge, who would see the men at stated intervals and assess the number of hours work a day.

While the men are under training they would be in receipt of training allowances from the Ministry of Pensions, as in the case of other disablements, but when training is complete they would pass automatically to the permanent section, where they would be in receipt of their assessed pension, according to their disability, but which would remain between 50 per cent. and 100 per cent. of the full pension. Their work would be paid at trade-union rates of wages per hour.

Site of Buildings.

As previously stated, the site should be chosen for its accessibility by tram, bus, or rail. It should not be restricted in size, but should allow room for expansion, with a view to the possibility of including some of the houses of the town building scheme specially allocated for the discharged soldier. With this end in view it would be well to avoid a site surrounded by a populous neighbourhood, or placed in any position where it might acquire the stigma of public curiosity or pity.

The following estimate has been based upon the requirements of the discharged ex-Service men in a population of 70,000 to 80,000.

The following buildings would be required:—

A workshop for training, 20–25 benches.
A workshop for permanent employment, 20–25 benches.
A recreation room and meal room, kitchen, and manager's office.
Instructor's room, implement room, and store room for materials.
Lavatory and washing accommodation.

The buildings, which it would probably be found most economical to obtain of wood, should be lofty, light, and well ventilated by good window space at each side, allowing effective cross-ventilation. They should be heated by a hot-water system and be connected with the electric main. It is not necessary to have an open-sided shed nor to expose the men to extremes of temperature. The ideal would be fresh air and equable temperature.

Work.

This should consist of light manual employment in selected trades, graded from fairly heavy work to the lightest possible for the less able. Two examples which fulfil these requirements would be carpentry and cabinet-making for the more able men, basket-making for the less able men. This side of the scheme is one of infinite difficulty, and upon the correct selection of trades success or failure will rest. Many suitable trades have been cited by the Ministry of Health (in Dr. J. E. Chapman's Memorandum on Colonies), but a great deal will depend upon local demand and facilities, and each particular district should select for its own needs. In this connexion it may be pointed out that the Ministry of Health are arranging for 1000 places for the training of men in existing sanatoriums, and an effort should be made to coördinate the work with them and to concentrate on the same trade, so that the sequence may not be broken, and a definite occupation may be provided for the man on his return home. Outdoor work for a previous town-dweller is not suitable where a living wage is to be earned, nor where large numbers of previous industrial workers are catered for. At the same time, the cultivation of interest in allotment gardening while the patients are under industrial training, would be of great value, as it would tend, at any rate in the summer, to lessen the time spent by the men in their own homes.

Meals and Hours of Work.—Staff.

The foregoing has indicated the necessity of providing meals and recreation during leisure hours. It will be necessary to provide a good mid-day meal, so that no energy is lost by the men having to return some distance home and back. The time gained could profitably be spent in rest. Tea, while not essential, could usefully be added and give a beneficial half hour's rest during the afternoon. The meals should be provided at cost price.

The shops would be open for eight hours a day, and five and a half days a week, but it would depend on the physical fitness of the worker how many hours he would be able to do. The day's work would usefully be divided up as follows: 8.30–12.30, work; interval for lunch and recreation. 2–4, work; interval for tea. 4.30–6.30, work; close.

At first a man will probably only be able to work the morning hours, but eventually many, if not the majority, will increase to the full day. The assessment of hours of work would have to be regulated by the medical officer, who would each week issue a time-table to be followed rigidly. Each hour of work should receive the wage corresponding to the union rate for that trade, irrespective of the actual amount turned out, thus making the scheme fulfil the rôle of the philanthropic employer.

The staff necessary would include the medical officer, who would probably be the tuberculosis officer for the district, and an efficient manager, who would control the business side of the shops, and see that the medical officer's instructions were conscientiously followed. He would be responsible to a committee of management appointed by the local body to whom the scheme was attached, and to whom they would be responsible. It would also be necessary to provide a capable instructor for each trade, both for the training of the men and the control of articles made in the permanent shop. A small staff would also be required to run the canteen and look after the provision of meals.

Home Visits.

We must not, however, rest when we have planned out the day's work of the men. The chief criticism which would come from the promoters of the colony system would be that "any scheme which does not include the whole life of the consumptive must end in failure." Here I am in entire agreement, and I would even go almost so far as to say that our efforts still tend to tackle tuberculosis from the wrong end, and that we should pay far more attention to the present and future homes of the patients rather than attempt to remove them to the distant hills and solitudes of colonies. As part of the scheme I would advocate an active home-visiting schedule controlled from the local dispensary, under which the visitors would endeavour by persuasion, education, and enlightenment, to help the consumptive to cure himself.

Finance.

At the present moment the Ministry of Health do not possess powers to make grants in aid of any but residential institutions for tuberculosis, and pressure will have to be brought to bear on the Treasury to sanction such a grant. This is, however, not an insurmountable obstacle, as already the Ministry are troubled to know what is to become of the men, who are to be trained in sanatoriums, when again turned out into the world, and they will, I think, welcome any proposition which holds out hope of providing this at a reasonable cost. To make any accurate estimate of the total outlay necessary for the buildings and land is, of course, impossible, as this will vary in the different localities. Nor is it possible to give an idea of the value of the labour of tuberculous subjects, which is an interesting question not yet worked out. If properly managed it should cover the cost of wages, and even in time produce a small profit, and in this way reduce the maintenance grant. I estimate that a sum of 30*s.* per head per week would cover cost of upkeep of buildings and plant, power, heating, lighting, water, rates and insurances, resident caretakers, cook, efficient instructors, and some amount of unproductive labour. In some cases, after a period of 12 months to two years, the men will be fit to draft into ordinary industry—that is, after overcoming the period when relapse is most likely. In other cases, of course, the period would be longer, and in some cases permanent. The loss incurred by this latter group would have to be placed against the gain of preventing infection of ordinary industrial workshops and the consequent fresh incidence of tuberculosis on their release from supervision and control.

Summary.

The objects claimed for this scheme are briefly as follows:—

1. Economy in the long run. Less initial outlay. Less frequency, and eventually almost total abolition of relapse, and the production of useful work by an otherwise idle population.
2. Immediate relief. Some such scheme could be put into working order while the plans of colonies are still being prepared.
3. An outlet for the men when their time of training under the Ministry scheme is complete instead of their being faced with the open market of competitive labour in the old unsuitable workshop.
4. It will work in and not against any existing or proposed scheme, and will form a very necessary adjunct to them.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Appearance of Typhus in Paris.

A DOZEN cases of typhus were found in Paris last week, the bacteriological diagnosis having been established at the Pasteur Institute. The patients were isolated immediately, and the Prefect of Police has issued instructions that the search for and investigation of any new cases are to be conducted with special care. Till now there have been no new cases, and it is hoped that the little epidemic will not spread. In 1919 a similar restricted epidemic broke out at Marseilles among German prisoners, but was soon checked. The cases in Paris at present have occurred among Polish workmen brought to Paris by refugees from provinces formerly invaded by the Germans. The situation in these provinces also gives rise to some anxiety, as many Polish workmen in a deplorable sanitary condition are arriving there daily. At Toul they have had to be put into barracks and subjected to vigorous disinfection. In this town, which is the point of arrival of the trains bringing Polish labour, there is an emigration bureau, but unfortunately no sanitary control has yet been organised, and it is to be feared that these workmen, once dispersed in the war area for the reconstruction of the towns, may propagate the epidemic throughout the north and north-east of France. In this connexion M. Gabriel Bertrand, professor at the Sorbonne, and M. Blocq Rousseau, have submitted to the Academy of Science an important communication showing the advantages for the disinfection of clothes infested with typhus-carrying lice and of ships infested with rats harbouring plague-carrying fleas, of employing chloropicrine, which was used during the war in offensive gas attacks. This product, of which there is a large quantity available, would be extremely useful if used, as suggested by Roux, in closed vessels.

The Enlargement of the Paris Hospitals.

There has been an enormous increase in the population of Paris, since many of the refugees from the invaded provinces who lived there during the war prefer to stay in the capital, and others cannot return to their ruined homes. The existing hospitals have thus become quite inadequate for the large number of sick people desiring admission. Lying-in hospitals especially are overcrowded, as was indicated last week, and it has been found necessary to vote grants to provide pregnant women with the means to have their babies at their homes. M. Mesureur, Directeur de l'Assistance Publique at Paris, has furnished to the Municipal Council a report on the enlargement of the hospitals. A sum of 150 million francs is estimated in the report as required for new buildings to be erected in the course of the next ten years. The amount needed for upkeep, now about 2,725,000 francs a year, will be some 10 millions.

Feb. 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin and the R.A.M.C. Memorial.

A PUBLIC meeting was held last week in the Royal College of Surgeons in aid of the Royal Army Medical Corps Memorial Fund. The President of the College was in the chair, and among those who spoke were the Lord Chancellor of Ireland, the Primate, the President of the Royal College of Physicians, Major-General Gerrard, A.M.S., and Colonel William Taylor, C.B. It was originally intended that the funds collected should go in part to the erection of a memorial in London, with replicas in Dublin and Edinburgh, and in part to provision for the widows and children of the men of the Corps who had lost their lives in the war. It appears that it has been necessary to abandon the latter purpose, and it is now intended to devote all the funds received to the erection of a memorial or memorials.

The Irish Nursing Council.

The constitution of the first General Nursing Council for Ireland was announced last week in the *Dublin Gazette*. It consists of 15 persons, of whom five are medical men and nine are nurses. The medical members are: Dr. E. Coey Bigger, Colonel Sir Arthur Chance, Colonel W. Taylor, Mr. R. J. Johnstone, and Dr. P. T. O'Sullivan. The representation of the various nursing organisations appears to have been fairly arranged.

Nurses' Salaries.

The Belfast Board of Guardians have decided to increase the salaries of probationer nurses as follows: First year, to £15; second year, to £20; third year, to £25; fourth year, to £30. The average salary paid to nurses in a large number of infirmaries and hospitals in the United Kingdom was £121, while the present salary in the Belfast Workhouse was £59, by far the lowest as compared with any institution in England or Scotland. The average now proposed will amount to £90. By revising the dietary of patients and officials in the workhouse the Belfast guardians are effecting a saving of £3500 per annum. It was stated at the weekly meeting on Feb. 10th that the week before there were 230 scarlet fever patients; 21 had since been admitted, 34 discharged, 1 had died, so that on Feb. 7th there remained 216. Purdysburn scarlet fever wards are also full at present. It was also decided to form a further dispensary subdistrict in Ballymacurett, a crowded working-class district of Belfast.

Feb. 17th.

SAVE THE CHILDREN FUND.

AN appeal has been issued by the Labour Committee of this Fund to labour organisations, calling attention to the urgent need for sending relief to the children in the famine areas of Europe. The labour organisations in neutral countries, such as Sweden and Switzerland, have already done much by feeding and housing children from the famine areas. Although it is assumed this cannot be done here, nevertheless there are many ways in which help can be given. The appeal says:—

> "The position in the coming winter, even in Great Britain, will be difficult, with the high prices of milk and other foods, but whatever difficulties have to be faced here are not to be compared with the suffering which thousands of children are undergoing in the distressed countries. We feel sure that your organisation will most readily help in this matter. If all the members of each labour organisation would give something, however small the sum, the result would be to save not merely the health but actually the lives of great numbers of suffering children. Nor could any act provide a more genuine demonstration of the solidarity of the workers the world over."

It is suggested that the fund raised through this appeal should be permanently maintained, and made applicable to the alleviation of the needs of the children of workers in this as well as in other countries. The appeal is signed amongst others by Mr. W. Adamson, M.P., Mr. J. R. Clynes, M.P., Mr. George Lansbury, Mr. J. H. Thomas, M.P., Mr. Arthur Henderson, M.P., and the secretary, Mrs. Pete Curran, who can be addressed at 28, Tavistock-square, London, W.C. 1

HOUSING NOTES.

The "Daily Mail" Exhibition at Olympia.

THOSE interested in the many amenities of the up-to-date house will do well to set aside a whole day for their visit to Olympia. They should plan their arrival for the early morning and visit the more popular exhibits first; by midday there are queues waiting for admission into some of the houses, and exhibitors are far too busy to give away more than a small proportion of the interesting information at their disposal. Thus the all-electric house, and the sectional wooden house made by the Norwegian House-Building Co. are amongst the exhibits which should be seen before 11 A.M. The Ministry of Health's annexe may be visited at leisure, but an attendant is required to explain the exhibits. Those who examine the truncated model cottages nearly all comment upon the small size of their rooms. This is partly due to an optical delusion, and it is to be regretted that adverse criticism should be passed without any demonstrator being present to correct faulty impressions.

Some of the exhibits are of special medical interest. Such are the child welfare exhibit, managed by the Middlesex Hospital; an electric "solarium," which in spite of its name is admirably appointed as a radiant-heat bath; electric sterilisers, which are efficient if expensive—one manufactured by the General Electric Company is particularly ingenious; and, finally, an improved water-closet seat well designed to prevent the possibility of contamination by those using it. Perhaps Messrs. Beck's electric laundry should be mentioned in this connexion; it is an economical outfit both as regards time and power, and the larger plant has a great advantage in that the clothes can be sterilised at the same time as they are cleaned.

The Ideal House.

Those who are seeking the ideal house find themselves confronted at the outset with a wide range of material from which to select its components. The usual brick has scarcely an advocate, because it does not need one. Some very tempting houses are built entirely from wood. One wooden cottage in particular attracted widespread admiration. It was built of unseasoned English elm and had been approved by the Ministry of Health, who, despite its thatched roof, give it the full status of a permanent building and a subsidy allowance of £150. This enables the house—three bedrooms, two living-rooms, kitchen, scullery, and stove—to be built for £300. The remarkable cheapness is due mainly to a saving in the raw material, which is bought at something under 3*d*. per cubic foot. The house can be ready for occupation within eight weeks of cutting down the trees needed for its construction. It might be feared that if this type of construction became popular the stock of elm in this country would be rapidly used up, but no one who knows anything about agricultural labour would share this apprehension. Concrete blocks offer a formidable rivalry to wood, and there are many machines exhibited which manufacture the blocks by unskilled labour "while you wait." The most successful, in our opinion, are those which are made on the principle of the skeletal system—hollow blocks, rigid yet light, with the advantage of the adiathermanous air-spaces.

Heating and lighting form a special section of the exhibition, coal-gas and electricity being the foremost competitors. The cleanliness and convenience of electric heating are apparent to all, but a few calculations make it evident that, even with electricity at 2*d*. or 1½*d*. a unit, economy is still on the side of coal-gas. An interesting plant for heating and lighting from No. 1 petrol spirit should not be overlooked. Although the report of the Coal Smoke Abatement Society published in THE LANCET on Nov. 17th, 1906, is quoted by one gas company in a well-informed pamphlet on the hygiene of gas fires, there was nothing in the exhibits suggesting that the comfortable, extravagant coal fire has been largely superseded.

"Labour-saving" has now become a catch phrase, and many old and well-advertised appliances appear under its guise. The most interesting are usually dependent on electric power, and will acquire considerable significance if the Government's plan for supplying electricity on a large scale should come to fruition. Various plants for the generation of electricity are to be seen, but all are too expensive to be of service to those who cannot afford to pay for labour. Garden and poultry exhibits are in profusion and of high quality. The exhibit of the Board of Agriculture deserves special mention. A model allotment shows vegetables in hearty growth, while at a stall instruction is given in bottling fruits, specimens being shown just as they were prepared in a London cottage to show the different utensils needed.

The World Shortage of Houses.

La Rochefoucauld declares that there is often something not displeasing to us in the adversity of our best friends. His remark might well be illustrated by an article appearing in the number of the official journal *Housing* published on Jan. 5th, and containing a summary of the housing conditions in a number of civilised countries throughout the world. The article in question deals in succession with Canada, where in spite of a Government loan of £5.000.000, the progress of housing has not been rapid; Australia, where the larger cities are suffering from a very pronounced shortage of houses, due in part to the steady flow of the population from country to town; New Zealand where a Parliamentary Committee has recommended the formation of a National Housing Department, and the allocation of £2,000,000 to a housing scheme for families with, in general terms, an income less than £300, plus £25 allowance per child where there are more than three children. South Africa, India, the United States, and France are in the same plight. In Italy, new housing at the cost of £10,000,000 is anticipated, and the Ministry of Industry is making an annual State grant of £400,000, which may be increased if the inhabitants and the coöperative societies show the requisite activity. Germany has perhaps the most acute problem of all, and has been forced in some towns to adopt rationing of house room and the billeting of civilians in private houses. Norway, Sweden, Holland, and Switzerland have all to face housing problems in acute form.

A Stitch in Time.

In addition to the world shortage consequent upon pre-war neglect, as well as upon the loss of labour during the five years of war, we are, in this country, faced with a fresh difficulty. While valiant efforts are being made to raise new houses throughout the land, practically nothing is being done to remedy the wear-and-tear of the large and constantly growing number of working-class houses that are tottering on the brink of the chasm between the dilapidated house which can, and the corresponding house which cannot, be made fit for human habitation. The unfit houses are continuing to be unfit, are becoming rapidly more unfit, and unless quickly patched or reconstructed will deteriorate beyond repair. If local authorities allow that to happen, much of their present effort at rehousing will be wasted, and they will be back in the old game of trying to catch up with the creation of the slum and of never quite succeeding before the next patch of slum has grown.

Measles Spread by Overcrowding.

The ill-effects of overcrowding are always accentuated by the advent of any infectious disease. This was very markedly the case at Barnsley in the spring of 1918, when the town was visited by an epidemic of measles. The medical officer of health, Dr. F. A. Sharpe, has written a special report dealing with this epidemic, in which he attributes a very important rôle to the bad housing conditions. For want of adequate accommodation the young patients had usually to be nursed in the room which served as living room for the rest of the family and as reception room for the neighbours. Besides spreading the disease abroad, this kind of sick room cannot be ideal from the patient's point of view. No less than 232 deaths were recorded during the year from measles and its complications.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. H. M. Nicholls retires on retired pay.

Temp. Lieut.-Col. J. F. Haswell (Col., T.F.) relinquishes his temporary rank on ceasing to be employed in the Army Medical Service.

Major R. G. H. Tate to be temporary Lieutenant-Colonel whilst specially employed.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major and Bt. Lieut.-Col. G. W. G. Hughes; Majors R. C. Wilson, H. W. Farebrother, G. A. K. H. Reed; Capt. J. R. Hill.

Temp. Capt. W. N. Parker relinquishes the acting rank of Lieutenant-Colonel and reverts to the acting rank of Major.

Major W. Tibbits is placed on retired pay.

The undermentioned relinquish the acting rank of Major: Capts. W. E. Adam, J. C. Sproule, A. L. Stevenson, W. H. S. Burney; Temp. Capt. and Bt. Major R. Bruce-Low; Temp. Capts. A. W. Comber, J. R. Pate, R. Heaton, G. T. Foster-Smith, E. B. Barton, F. R. Barwell, A. G. Anderson.

To be temporary Captains: H. R. McNair, late Can. A.M.C., H. H. Perry, late Can. A.M.C.; Temp. Lieut. P. Carroll.

Officers relinquishing their commissions:—Temporary Majors retaining the rank of Major: R. H. J. Swan, S. M. Cox, R. L. Davies. Temp. Capt. (acting Major) W. N. Parker and Temp. Capt. G. L. Leggat are granted the rank of Lieutenant-Colonel. Temporary Captains granted the rank of Major: H. H. Sampson, W. V. Robinson, J. Porter, C. D. Coyle, E. F. C. Dowding, W. H. Clements, J. Rodger, A. L. Lockwood. Temporary Captains retaining the rank of Captain: G. D. Fairley, T. M. J. Stewart, B. V. Ward, J. R. K. Thomson, A. R. Hargreaves, C. K. Sylvester, E. A. A. Saunders, J. W. E. Cole, N. I. Sinclair, E. K. Gawn, N. B. Capon, R. C. Cooke, P. C. West, S. Forrest, N. F. Graham, H. M. MacKenzie, A. J. McCreadie, I. Feldman, F. C. Robbs, N. J. Judah, R. T. Todd, W. H. Ogilvie, E. E. Lightwood, P. Carroll, W. H. Sheffield, J. F. Allen, J. Caton-Shelmerdine, E. R. Griffiths, A. G. Price, W. E. Fetherstonhaugh, T. L. Clark, H. S. De Boer, G. W. Smith, C. E. Waldron, O. F. D. Airth, C. W. S. Davies-Jones, J. C. Waitham, J. McI. Falkiner.

SPECIAL RESERVE OF OFFICERS.

W. McK. H. McCullagh relinquishes the acting rank of Lieutenant-Colonel.

Captains relinquishing the acting rank of Major: J. Kennedy, G. T. Mullally, T. McEwen, H. W. Maltby.

Capt. B. W. Jones relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

1st Southern General Hospital: Major (acting Lieut.-Col.) W. Kirkpatrick relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

TERRITORIAL FORCE RESERVE.

Capt. W. Hunter, from 4th London General Hospital, to be Colonel.

ROYAL AIR FORCE.

Medical Branch.—Flying Officers to be Flight Lieutenants: T. Montgomery, C. F. Eminson, R. D. Jones. The undermentioned are transferred to the unemployed list: Capts. S. J. Moore, D. Guthrie; Lieut. J. Stark.

Dental Branch.—N. H. Medhurst is granted a temporary commission as Lieutenant. Lieut. P. E. Bernard relinquishes his commission, and is permitted to retain his rank.

INDIA AND THE INDIAN MEDICAL SERVICE.

Col. J. K. Close to be Inspector-General of Civil Hospitals, United Provinces, vice Lieut.-Col. W. H. E. Woodwright resigned. The Governor in Council has nominated Col. J. B. Smith as official additional Member of the Legislative Council of Bombay Presidency, vice Major-Gen. W. E. Jennings resigned. Lieut.-Col. R. G. Turner, civil surgeon, has been transferred from Mussoorie to Allahabad. Lieut.-Col. G. Hutchison, civil surgeon, has been transferred from Allahabad to Gorakhpur. Major Harper Nelson has been appointed Professor of Materia Medica at the Lahore Medical College. Air Lieut.-Col. J. Swann reverts to civil employ in the Punjab. Capt. R B. Lloyd has been appointed to the Civil Medical Department of Bengal. Capt. J. H. Smith, Capt. J. W. Lane, and Capt. C. S. Smith are promoted to Acting Lieutenant-Colonels. Brevet-Major W. McNaughtan, R.A.M.C., military medical officer, has been appointed to hold civil medical charge of Rooker, in addition to his duties, vice Capt. R. V. Clarke, R.A.M.C. The services of Capt. D. O'Malley, R.A.M.C., have been placed at the disposal of the Government of India. Major

A. H. Hayes, R.A.M.C., has been appointed to hold Civil Medical Charge of Naini Tal, in addition to his own duties, vice Lieut.-Col. T. Humber, civil surgeon, granted leave. Dr. R. G. Griffin, Deputy Sanitary Commissioner for Anti-Hookworm Campaign, has been appointed Civil Surgeon, Jalpalguri, in addition to his own duties, vice Major R. E. Lloyd, granted leave for one year. Lieut.-Col. E. V. Hugo has been appointed Professor of Surgery, King Edward Medical College, Lahore. Major C. A. Gourlay, D.S.O., civil surgeon, has been posted to Mymen Singh. Col. J. K. Close to be a Member of the United Provinces Legislative Council, vice Col. C. Mactaggart, C.S.I., C.I.E., resigned. Major R. H. Bott has been appointed Professor of Operative Surgery, Lahore Medical College; Mr. R. L. Stevenson reverts to Bengal.

THE HONOURS LIST.

Capt. H. M. Collins, I.M.S., and Major (acting Lieut.-Col.) A. Spitteler, I.M.S., have been appointed Officers of the Order of the British Empire for valuable services rendered in connexion with military operations in Southern and Central Kurdistan.

BROUGHT TO NOTICE.

The names of the following medical officers are brought to notice for valuable services rendered during the military operations in Central and Southern Kurdistan:—

Lt. (acting Capt.) L. G. Blackmore, R.A.M.C.; Capt. H. M. Collins, I.M.S.; Maj. J. F. Grant, R.A.M.C. Lt.-Col. (temp. Col.) J. A. Hamilton, C.M.G., I.M.S.; Temp. Capt. W. G. Miller, I.M.S.; Capt. (acting Maj.) M. Purvis, I.M.S.; Maj. (acting Lt.-Col.) A. Spitteler, I.M.S.; Capt. (acting Maj.) C. J. Stocker, M.C., I.M.S.; Capt. (acting Maj.) J. M. Weddell, R.A.M.C.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING JANUARY, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 9·2 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 10·1, 11·1, and 10·7 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Hammersmith, the City of Westminster, St. Marylebone, and Woolwich; and the highest in Fulham, Finsbury, Bethnal Green, Deptford, Greenwich, and Lewisham. The prevalence of scarlet fever showed a considerable decrease—27 per cent.—from that recorded in the preceding month; this disease was proportionally most prevalent in Finsbury, Deptford, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2476 scarlet fever patients at the end of the month, against 2293, 2848, and 2841 at the end of the three preceding months; the weekly admissions averaged 280, against 340, 427, and 350 in the three preceding months. Diphtheria was slightly more prevalent than in December, and has shown a progressive increase since August, 1919: the greatest proportional prevalence of this disease was recorded last month in Fulham, Holborn, Bethnal Green, Wandsworth, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1001, 1168, 1405, 1572, and 1845 in the five preceding months, further rose to 1971 at the end of January; the weekly admissions averaged 263, against 125, 180, 207, 215, and 239 in the five preceding months. The prevalence of enteric fever was about double that in the preceding month; of the 42 cases notified last month 4 belonged to Fulham, 3 to the City of Westminster, 3 to Hackney, and 3 to the Port of London. There were 25 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 47, 44, and 25 at the end of the three preceding months; the weekly admissions averaged 4, against 6, 5, and 2 in the three preceding months. Erysipelas was proportionally most prevalent in Chelsea, Finsbury, Bethnal Green, Southwark, Battersea, and Deptford. The 49 cases of puerperal fever included 6 in Islington, 5 in St. Pancras, 5 in Bermondsey, 4 in Lambeth, 3 in Bethnal Green, 3 in Wandsworth, and 3 in Camberwell. The 17 cases of cerebro-spinal meningitis included 3 in Bermondsey, 2 in Hammersmith, 2 in Islington, and 2 in Poplar; while the 2 cases of poliomyelitis belonged respectively to Stepney and Lambeth.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JANUARY, 1920.
(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,026,901**	—	**1261**	**1213**	—	**42**	—	**49**	**253**	**17**	**2**	**2837**	**9·2**	—	**72**	**19**	**120**	**78**	**5**	**67**	**361**	**1·2**	**4894**	**15·8**
West Districts:																								
Paddington	122,507	—	31	42	—	2	—	1	6	—	—	82	8·7	—	—	—	—	—	—	4	4	0·4	118	12·6
Kensington	151,535	—	28	35	—	—	—	2	9	1	—	75	6·5	—	3	—	3	2	—	1	9	0·8	198	17·0
Hammersmith ...	114,952	—	9	27	—	2	—	1	8	2	—	49	5·6	—	—	—	5	1	—	1	7	0·8	130	14·7
Fulham	145,186	—	47	66	—	4	—	1	10	—	—	128	11·5	—	1	2	7	—	—	2	12	1·1	146	13·1
Chelsea	57,368	—	16	13	—	1	—	—	5	—	—	35	8·0	—	1	1	—	—	—	—	2	0·5	60	13·6
CityofWestminst'r	122,046	—	35	21	—	3	—	2	2	—	—	63	6·7	—	1	1	2	—	—	—	4	0·4	126	13·5
North Districts:																								
St. Marylebone ...	92,796	—	22	8	—	—	—	—	4	—	—	34	4·8	—	1	3	—	1	—	3	8	1·1	135	19·0
Hampstead	75,649	—	19	16	—	1	—	1	4	—	—	41	7·1	—	—	—	2	—	—	1	3	0·5	69	11·9
St. Pancras	186,600	—	63	45	—	2	—	5	9	—	—	124	8·7	—	—	—	1	5	—	1	7	0·5	222	15·5
Islington	297,102	—	95	91	—	2	—	6	20	2	—	216	9·5	—	8	2	11	9	—	6	36	1·6	411	18·0
Stoke Newington...	47,426	—	17	7	—	—	—	—	2	—	—	26	7·1	—	—	1	2	1	—	3	7	1·9	49	13·5
Hackney	196,598	—	49	67	—	3	—	—	14	—	—	133	8·8	—	3	—	9	9	—	2	23	1·5	247	16·4
Central Districts:																								
Holborn	35,303	—	9	16	—	1	—	—	1	—	—	27	10·0	—	1	1	1	—	—	—	3	1·1	30	11·1
Finsbury	68,011	—	27	16	—	2	—	1	12	1	—	59	11·3	—	1	—	1	—	—	1	3	0·6	114	21·9
City of London ...	16,138	—	4	3	—	1	—	—	1	1	—	10	8·1	—	—	—	1	—	—	—	1	0·8	15	12·1
East Districts:																								
Shoreditch	89,675	—	29	28	—	2	—	2	6	—	—	67	9·7	—	13	1	4	—	—	3	21	3·1	158	23·0
Bethnal Green ...	107,362	—	35	52	—	2	—	3	12	—	—	104	12·6	—	4	1	4	4	1	4	18	2·2	141	17·1
Stepney	232,010	—	72	74	—	—	—	1	7	—	1	155	8·7	—	—	—	4	9	—	3	16	0·9	279	15·7
Poplar	143,443	—	34	51	—	1	—	1	7	2	—	96	8·7	—	1	1	6	4	—	7	19	1·7	226	20·5
South Districts:																								
Southwark	167,936	—	56	49	—	—	—	1	18	1	—	125	9·7	—	3	1	2	4	1	5	16	1·2	230	17·9
Bermondsey	107,635	—	33	22	—	—	—	5	6	3	—	69	8·4	—	3	—	4	5	1	3	16	1·9	141	17·1
Lambeth...	272,038	—	98	74	—	2	—	4	13	—	1	192	9·2	—	15	—	11	6	—	6	38	1·8	340	16·3
Battersea	150,023	—	45	37	—	2	—	2	14	1	—	101	8·8	—	1	1	7	3	1	3	16	1·4	169	14·7
Wandsworth... ...	300,787	—	101	123	—	1	—	3	22	1	—	251	10·9	—	—	—	7	2	—	2	11	0·5	280	12·1
Camberwell	239,461	—	81	83	—	1	—	3	11	1	—	180	9·8	—	5	1	10	5	—	4	25	1·4	276	15·0
Deptford...	103,527	—	53	29	—	2	—	2	8	—	—	94	11·8	—	4	1	3	3	—	1	12	1·5	143	18·0
Greenwich	90,440	—	55	29	—	1	—	1	—	1	—	87	12·5	—	3	—	—	1	1	—	5	0·7	103	14·8
Lewisham	161,405	—	70	62	—	—	—	1	12	—	—	145	11·7	—	—	1	9	3	—	—	13	1·0	174	14·1
Woolwich	131,942	—	28	27	—	1	—	—	10	—	—	66	6·5	—	—	—	4	1	—	1	6	0·6	164	16·2
Port of London ...	—	—	—	—	—	3	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Jan. 31st the deaths of 4894 London residents were registered, equal to an annual rate of 15·8 per 1000; in the three preceding months the rates had been 14·1, 14·6, and 14·1 per 1000. The death-rates ranged last month from 11·1 in Holborn, 11·9 in Hampstead, 12·1 in the City of London, 12·1 in Wandsworth, 12·6 in Paddington, and 13·1 in Fulham, to 18·0 in Islington, 18·0 in Deptford, 19·0 in St. Marylebone, 20·5 in Poplar, 21·9 in Finsbury, and 23·0 in Shoreditch. The 4894 deaths from all causes included 361 which were referred to the principal infectious diseases; of these 72 resulted from measles, 19 from scarlet fever, 120 from diphtheria, 78 from whooping-cough, 5 from enteric fever, and 67 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Paddington, Chelsea, the City of Westminster, Hampstead, St. Pancras, and Wandsworth, and the highest in Stoke Newington, Shoreditch, Bethnal Green, Poplar, Bermondsey, and Lambeth. The 72 deaths from measles were 39 fewer than the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Shoreditch, Bethnal Green, Lambeth, Deptford, and Greenwich. The 19 fatal cases of scarlet fever were 6 in excess of the average, and included 3 in St. Marylebone, [illegible] in Fulham, and 2 in Islington. The 120 deaths from diphtheria exceeded the average by 59; the greatest proportional mortality from this disease occurred in Fulham, Hackney, the City of London, Shoreditch, Battersea, and Lewisham. The 78 fatal cases of whooping-cough were 9 in excess of the average; this disease was proportionally most fatal in Islington, Hackney, Bethnal Green, Stepney, Bermondsey, and Deptford. Five deaths from enteric fever were registered during the month, against an average of 7. The 67 fatal cases of infantile diarrhœa were 6 below the average; the greatest proportional mortality from this disease occurred in Paddington, St. Marylebone, Stoke Newington, Shoreditch, Bethnal Green, and Poplar. In conclusion, it may be stated that the aggregate mortality in London during January from these principal infectious diseases was 8 per cent. above the average.

(Week ended Feb. 14th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 15·3, 15·9, and 15·9 in the three preceding weeks, rose to 17·4 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual rate was 18·4, or 1·2 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 8·6 in Barrow-in-Furness, 8·9 in Ealing, and 9·3 in Eastbourne, to 24·2 in Bootle, 27·7 in Liverpool, and 27·9 in Dewsbury. The principal epidemic diseases caused 453 deaths, which corresponded to an annual rate of 1·4 per 1000, and comprised 146 from measles, 120 from whooping-cough, 107 from diphtheria, 56 from infantile diarrhœa, 19 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 1·7 in Stoke-on-Trent, 2·1 in Liverpool, 2·4 in Nottingham, 2·8 in Hull, and 3·0 Dewsbury; whooping-cough of 3·6 in Lincoln; scarlet fever of 2·6 in Darlington; and diphtheria of 1·6 in Bolton and 1·8 in Enfield. The deaths from influenza, which had been 85, 66, and 98 in the three preceding weeks, rose to 109, and included 25 in London, 15 in Liverpool, 9 in Birmingham, 7 in Leeds, and 4 in Wallasey. There were 2459 cases of scarlet fever and 2010 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2487 and 2014 respectively at the end of the previous week: 4 cases of small-pox (2 from East Ham, 1 from West Ham, and 1 from Poplar), of which 1 proved fatal, were also admitted during the week. The causes of 47 deaths in the 96 towns were uncertified, of which 13 were registered in Birmingham and 4 in Liverpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 15·3, 15·9, and 14·7 in the three preceding weeks, was again 14·7 per 1000. The 326 deaths in Glasgow corresponded to an annual rate of 15·3 per 1000, and included 7 from measles, 4 from diphtheria, 2 from infantile diarrhœa, and 1 from whooping-cough. The 83 deaths in Edinburgh were equal to a rate of 12·7 per 1000, and included [illegible] from measles, and 1 each from whooping-cough, diphtheria, and infantile diarrhœa.

Irish Towns.—The 139 deaths in Dublin corresponded to an annual rate of 17·5, or 1·7 per 1000 below that recorded in the previous week, and included 3 from whooping-cough, and 2 each from diphtheria and infantile diarrhœa. The 159 deaths in Belfast were equal to a rate of 20·1 per 1000, and included 11 from measles, 2 each from scarlet fever and infantile diarrhœa, and 1 from whooping-cough.

Correspondence.

"Audi alteram partem."

NEW CLASSIFICATION OF TRYPANOSOMES: A QUESTION OF NOMENCLATURE.

To the Editor of THE LANCET.

SIR,—Having occasion recently to compare the latest edition of Castellani and Chalmers's "Manual of Tropical Medicine" with my own copy of this most useful work, which accompanied me everywhere while I was on service in the East, I was surprised to find myself confronted, in the section dealing with the trypanosomes, with a number of new, "personal," generic names, amongst which the parasites belonging to the well-known genus *Trypanosoma* had been distributed. On investigating further, I ascertained that these new names were all the result of an effort by Chalmers to classify the trypanosomes.[1] In an almost apologetic conclusion to this paper—as if the author felt some attempt to justify himself were necessary—Chalmers adds: "It may be said that the time is not ripe for an attempt to classify the trypanosomes, but someone must make a beginning, and without doubt Professor Minchin would have formulated a classification had he lived."

It may be readily agreed that an endeavour to separate and define the chief types in the case of a large number of different forms, such as are at present collected together in the genus *Trypanosoma*—so far as this can be done upon the available data—is likely to prove of assistance to workers on the group. Even though such a classification can be yet only tentative, it may help to clarify or crystallize, as it were, one's own ideas upon the subject. And it was, I know, Professor Minchin's expressed hope to write next a book dealing specially with the trypanosomes. It is not my intention, however, to discuss here the merits of the proposed classification.

Personally, I should have read Chalmers's paper with much more interest and profit if the arbitrary and at times absurd nomenclature suggested had not produced a feeling of half-amused irritation. And the purpose of this note is to say that I think the time has come to protest strongly against the ever-increasing use of the names of persons for new genera by those working on the protozoa. As the recorder of protozoa for the *Zoological Record* since 1901, I have noticed a marked tendency in this direction, unfortunately, during recent years, but I consider the limit has been overstepped in the paper by Chalmers. This much I can certainly say, as an associate and co-worker with my late professor for a period of many years, that in any regrouping and subdivision which it had seemed good to him to propose he would have had due regard to the established rules and usages of zoological nomenclature; these would not have been violated in the manner which is only too apparent in the case of Chalmers's new names. As for such a verbal atrocity as "*Trypocastellanellaneæ*"—it could not have been perpetrated by Professor Minchin. I well remember how vastly amused he was over the analogous word "*Spiroschaudinnia*" when that was created.

If the scientific name for an animal affords an indication of the character or affinity of its bearer, or of some biological feature associated with it, this name is of definite and practical use. But any usefulness in this respect is largely stultified by the adoption of a personal name for that of the genus. No information of scientific value is afforded thereby; no clue to the nature or relationships of the type thus named. Take the case of the piroplasms and related forms, for example. Of what use are the names given to *Theileria*, *Nicollia*, *Nuttallia*, *Smithia*, *Toddia*, and so on? I know that these parasites have some connexion with piroplasms, because they are named after well-known contemporary workers on the group. But a generation or so hence, how many of these will be anything but meaningless names to students of the subject?

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[1] Jour. Trop. Med., xxi., 1918, p. 221.

nd now it is proposed to inflict on us *Lewisonella*, *astellanella*, *Duttonella*, &c.! So far as I am aware, rofessor Minchin never created a personal generic ame in the whole course of his scientific research. The small amœboid parasite, *Malpighiella refringens*, f the rat-flea furnishes only an apparent exception, ecause it was named after its habitat in the excretory rgans, generally known as the Malpighian tubules.)

Helminthologists are much less prone to this bad abit than are, unfortunately, certain protozoologists. write subject to correction, as I have been away uring some years, but I do not think that helminthology burdened with such names as *Leiperia* or *Leiperella*, *icollina*, *Stewartia*, and so on. Apart from the well-nown parasite, which was commonly referred to in the .E.F. as the "Bill Harris" (and even in regard to this does not appear to be certain that *Schistosoma* is not iore correct), there are very few of the important arasitic worms whose generic name is based upon a roper name. Among the protozoa, *Laverania* and *eishmania*, for instance, are well-established and idely known, and no objection can now be taken them on the ground of their personal character. ut I do wish to make an earnest appeal to those terested in the study of protozoa to refrain in the iture from lavish use of proper names for new genera.

More latitude may perhaps be allowed as regards the se of personal names in the formation of new species. hough here also, I know that Professor Minchin expressed himself strongly on more than one occasion in cent years in favour of using, for instance, the name the host, or of the locality in which it is prevalent, a suitable specific name for a new parasite. In the st record I compiled I had to include the following ew species of parasite created by Yakimoff:—*Prowakia* [= really, *Bodo*] *ninæ-kohl-yakimovi*, *Trichomonas næ-kohl-yakimovi* and *Trypanoplasma ninæ-kohl-yakiovi!* Mme. N. Kohl-Yakimova is an excellent partner; it I think it would have sufficed to commemorate her ıme in the case of one new species alone.

The very height of absurdity, however, is reached hen a personal name and a scientific term are ited into one compound word. What does "*Trypostellanelleæ*" mean? Is "Trypo" a contraction for Trypano"? Are we henceforth to think of this tribe parasites as, primarily, corkscrew-shaped, little stellanis? One could imagine that Chalmers must ıve felt acutely disappointed that he was precluded om introducing us also to a little Chagas, dividing by ultiple fission ("*Schizochagasella*") or to a little esnil, living somewhere internally ("*Endomesnilella*"). ut I am afraid that Chalmers can have no sense of ımour. Seriously, the thing is ridiculous, if I may so press myself. As a matter of fact, one of the recomendations appended to Art. 8 of the Code of Intertional Rules of Zoological Nomenclature runs thus: Les noms propres ne doivent pas entrer dans la rmation des mots composés"; or, as the English rsion puts it: "The use of proper names in the rmation of compound generic names is objectionable." is—distinctly.

Fortunately, in my opinion, some, at any rate, of the w generic names proposed by Chalmers have no lidity. Admitting, for present purposes, that the fferent types of trypanosome are to be subdivided ıong different genera along the lines suggested, ıalmers appears to have arbitrarily created names thout any reference to the nomenclatural history of e genus. Now Doflein, in 1901,[2] separated *Trypanosoma visi*, *brucei*, and other forms from the trypanosome of gs (*T. rotatorium*), as a distinct sub-genus, to which gave the name *Herpetosoma*. If, then, the first-med forms are now to be regarded as possessing neric rank, the sub-generic name *Herpetosoma* has iority and becomes raised to the rank of genus, the pe species being *Herpetosoma lewisi* of the rat. Art. 7 the International Code runs thus: "Un nom générique sse au rang de nom sub-générique quand le genre sse au rang de sousgenre, et réciproquement." ıerefore, Lühe had no right to ignore Doflein's name *Herpetosoma* when, in 1906, he proposed the generic name *Trypanozoon* for mammalian trypanosomes.[3] For the time being *Trypanozoon* became a synonym. If, however, it is now considered preferable to remove the pathogenic mammalian forms from the genus containing *lewisi* and associated parasites of small rodents, we can correctly and most fittingly restore the name *Trypanozoon* for the former; it is, at any rate, much more suitable than *Castellanella*. We should have then *Trypanozoon gambiense*, *brucei*, *evansi*, &c. There is therefore, I think, no justification for *Lewisonella* and *Castellanella*. I fear I cannot at present facilitate, likewise, the *exit* of *Duttonella*; but perhaps some authority on spirochætes can assist? To complete the enumeration, it may be added that, if the trypanosomes of fishes are generically distinct from *T. rotatorium*, their generic name should be *Hæmatomonas*, Mitrophanow, 1884 (this name was adopted by Lühe). And if those of birds are again distinct, their generic name should be *Trypanomorpha*, given by me to the trypanosome of the little owl (*T. noctuæ*) in 1906.

One further point in conclusion. Chalmers separates the Uganda parasite of sleeping sickness from Dutton's form *T. gambiense*, as a distinct species, *T. castellanii*. As I pointed out at the time,[4] and again in my article on the Hæmoflagellates,[5] the specific name *castellanii*, Kruse, is in any case a synonym, antedated by the name given by Castellani himself, when he made known his most important discovery of the parasites in the cerebro-spinal fluid—viz., *ugandense*—"from the country where I found it first." If the suggested separation of this form is adopted, its correct specific name is *ugandense*; and we then have the useful series —*gambiense*, *ugandense*, *rhodesiense*, and *nigeriense*.

It is greatly to be regretted that an interesting paper like this by Chalmers should lose much of its attractiveness by reason of its errors, both of commission and omission, in regard to the nomenclature. It is, indeed, to be hoped, however, that in the next edition of the "Manual of Tropical Medicine," these will not be repeated.

I am, Sir, yours faithfully,

H. M. WOODCOCK.

Lister Institute of Preventive
Medicine, S.W., Feb. 14th, 1920.

CIRCUMCISION AND CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 20th, 1919, you published a most interesting and suggestive study of congenital hypertrophic stenosis of the pylorus by Mr. H. Tyrrell Gray and Dr. G. R. Pirie, in which reference was made to a possible causal connexion between the presence of phimosis, or preputial adhesions, and the vomiting associated with this malformation of the pylorus in infants. As I understand it, these writers suggest that phimosis may be responsible for the additional spasm which causes a tumid pylorus to block the outlet of the stomach, or it may cause spasm in a healthy pylorus which gives rise to the same clinical phenomena. In both cases the adherent prepuce acts as a source of irritation to the adrenals, and the consequent hyperadrenalism may lead to hypertonus of the pyloric sphincter, whether a tumour be present or not.

A recent case admitted to the East London Hospital under my care seems partially to bear out their contention, which they supported by instances of cessation of projectile vomiting after circumcision. The patient was a boy, aged 5 weeks, with a two weeks' history of vomiting, wasting, and constipation. On admission the child was emaciated and wizened; the vomiting was so projectile in character that, I am told, it was forced some 6 feet away from the infant. Gastric peristalsis was easily observable, but there was some doubt as to whether a pyloric tumour could or could not be felt. The penis was examined and the prepuce could not be withdrawn over the glans. I examined the child on the day after admission with a view to operation, but his condition was so pitiable that I hesitated to do

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"Die Protozoen als Parasiten und Krankheitserreger," 1901 tion, p. 60.

[3] M. Meuse, "Handb. d. Tropenkrankht.," 1906 edition, vol. iii., p. 92.

[4] Zool. Record, 1903.

[5] Quart. Journ. Microsc. Sci., 50, 1906.

any abdominal operation, even Rammstedt's, which can easily be finished in a few minutes. It therefore occurred to me to test the value of circumcision. The child was accordingly anæsthetised by the open-ether method, and we took the opportunity of palpating the abdomen. No pyloric tumour could be felt. Circumcision was done, and we were delighted to find that all vomiting ceased and the child began to put on weight—for a week. At the end of this period projectile vomiting again occurred and visible peristalsis was seen. I re-examined the child, and, after due inquiry, came to the conclusion that the recurrence of vomiting could be explained by the fact that the feeds were too large. These were reduced in amount and peptonised milk was given. A further week of apparent prosperity ensued, and then the child refused its feeds and suddenly died.

The post-mortem examination revealed no pyloric tumour, no gastritis, and no obvious cause of death except slight broncho-pneumonia. There were no strictures in any part of the alimentary tract.

This case appears to be strictly comparable to those recorded by Mr. Gray and Dr. Pirie where circumcision has had a beneficial effect on pyloric spasm. However, the fact of recurrence of projectile vomiting, amenable to alteration in the character and amount of the feeds, suggests that other factors are present which one cannot expect to alter by the removal of the adherent prepuce.

I am, Sir, yours faithfully,
Devonshire-place, W., Feb. 12th, 1920. JOSEPH E. ADAMS.

LOCAL ANÆSTHETICS IN INTESTINAL OBSTRUCTION.

To the Editor of THE LANCET.

SIR,—I have noticed that in operations for the relief of intestinal obstruction the vomiting which generally follows the anæsthetic contains stercoraceous material, which during the act becomes drawn into the air-passages. I have therefore decided not to give general anæsthetics in these operations. Indeed, I have carried out many abdominal sections with no anæsthetic; very little pain is caused, and local anæsthetics, such as freezing with ether or ethyl chloride, or the hypodermic injection of β-eucaine, are quite sufficient. By following this suggestion I feel that lives would be saved which now are lost from acute bronchitis.

I am, Sir, yours faithfully,
Deal, Feb. 17th. THOMAS H. MORSE.

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—In a letter which appeared in your issue of Feb. 7th Dr. Frederic Thomson asks the reasons for my belief that certain cases of mild scarlet fever were not cases of rubella. Let me make it clear that my statement referred only to cases which had been under my observation during the present epidemic, and not to mild scarlet fever in general. I should be the last to assert that the differentiation of mild scarlet fever from rubella is always possible, although I do believe that the number of instances in which confusion is inevitable should be small.

Part of the answer to Dr. Thomson's query is given by Dr. E. W. Goodall in his letter last week, where he says, "rubella has not been prevalent in London lately, nor is it now," an experience with which I am in complete agreement. Neither have these patients caused any outbreak of rubella in our scarlet fever wards; not a single case of this disease has occurred. Additional arguments are the facts that none have shown catarrhal symptoms, none have presented preponderating enlargement of the mastoid or occipital glands, none have shown an eruption of measly character on the face, limbs, or elsewhere; and where complications have occurred they have been those associated with scarlet fever—i.e., otitis media and cervical adenitis. The raw peeled tongue has been very evident on the fourth day, and typical desquamation has appeared in due course in nearly all cases; this desquamation has reappeared after the second attack.

But the object of my letter was to elicit the experience of others during the present outbreak. I still hold that the number of relapses or reinfections is decidedly in excess of normal, as also is the number of patients who give a history of a previous attack of scarlet fever. Evidently Dr. Goodall cannot corroborate me, but I should like to have some further expressions of opinion. Dr. Goodall will notice that I have taken to heart his reproof with regard to the term German measles; it is justified.

I am, Sir, yours faithfully,
Devonshire-place, W., Feb. 16th, 1920. CHARLES R. BOX.

MEDICAL PRACTICE IN A TRANSITIONAL PERIOD.

To the Editor of THE LANCET.

SIR,—In a leading article in your issue of Feb. 7th you allude to the present very truly as a transitional period of medical practice. Several thousand medical men have returned home after periods of service in the R.A.M.C. with a very different vision of the future of civil medical work. They have learned a good deal to avoid, but they have also learned much they will be willing and anxious to incorporate in any future scheme of medical service. One lesson learned is the value of coöperation. That is a point which does not need to be laboured. My wish is to deal with another matter altogether. Medical officers have not only seen service with units of different kinds, field ambulances, base hospitals, &c., but in many cases have had special courses of training. This tends to an all-round knowledge lacking in the civil general practitioner without these experiences. In the R.A.M.C., among both officers and men, high specialisation is rather discouraged than encouraged. At first sight this looks on a par with general army inefficiency, as compared, for example, with a civil business of vast dimensions. But five years' acquaintance with the R.A.M.C., and the prospect of a return to civil practice, leads me to take another view.

I qualified over 20 years ago, and since then there have been many and huge advances in medicine and allied sciences. What has been the effect on the general practitioner, who makes up the bulk of the profession? Little by little his work has been, and is still being taken from him, and passed into the hands of specialists working for public bodies, until he is becoming something less than the old apothecary. The establishment of tuberculosis clinics, venereal clinics, infant welfare clinics, &c. (the process is steadily continuing) are nothing more than an open implication that the general practitioner does not know his work and is not to be trusted with these matters. Many years ago I consulted a solicitor for the first, and I hope the last, time I put the details before him and asked him if it was a good enough case to take to court. His reply was: " must take counsel's opinion." That is what the general practitioner is coming to. No doubt in the future when he is called to a bedside he will take the temperature and feel the pulse and remark: "Ah, this is a case for a lung specialist," or a heart specialist, or any other specialist, so long as he is not expected to make a diagnosis himself or treat the case on his own responsibility.

Now, who or what is responsible for this position Partly the scramble for a living, which makes the unfortunate practitioner take a huge list of panel and similar patients, and compels him to "get through" a crowd of 50 or 60 patients in an evening surgery of an hour and a half. That is a point which must be remedied in any future scheme of medical service. But far more than that the responsibility lies at the door of those responsible for medical education. The present student is overloaded with a lot of perfectly useless stuff: there is a hopeless waste of time in lectures on subjects which cannot be taught by lectures, and provision for post-graduate work, without which a man soon drops behind, is only now being talked about as a general necessity.

For qualification purposes there should be one standard throughout the country for a pass examination, and this should represent the minimum requir nents for a general practitioner—I know how often his has been discussed. Let the examining bodies ave their D.P.H.'s, their diplomas in radiology, athology, and what not, for those to take who lesire. For a pass examination no man would be sked such absurd questions as "Discuss the theories f hyperpyrexia," as I was asked. Nor should obscure ervous diseases be given him to diagnose in his linical examination. But he would be expected to be ble to diagnose early pulmonary tuberculosis without aving to send round for the tuberculosis expert, and to now how to administer "606" without the aid of the enereal expert. Every man should be taught that the nicroscope, including the dark-ground condenser, is as ecessary a part of a practitioner's equipment as a linical thermometer or a stethoscope. Also he should e able to do simple serological tests like the Widal. I now this is poaching on the preserve of the specialist, ut, after all, is it not better to have 1000 men with a ood all-round knowledge than one highly technical xpert and 999 ignorant men?

To teach these things, not as a matter of academic nterest, but as being necessary to the medical man's uture work, would mean a drastic overhaul of the nedical curriculum. Such subjects as toxicology and nateria medica should be ruthlessly thrown overboard. ectures on anatomy and systematic medicine and urgery are a waste of both the lecturer's and the tudent's time. Generally speaking, lectures which annot be illustrated by experiments or by clinical xamples should be cut out. Anatomy can be taught y a good prosector dissecting before a small group of ix men much better than by a professor with a vonderful memory and marvellous diagrams. Similarly, athology can be much better taught in the laboratory han in the lecture-room. The lectures on surgery that listened to were read verbatim; with a text-book efore me I could have made as good a professor. inally, post-graduate work ought to be compulsory, ut at the present time not one man in a hundred an afford the expense of a locum-tenent while he takes ut a post-graduate course which he also has to pay for.

These, Sir, are a few ideas which I think need iscussion in the transitional period. I have no axe to rind. The form of the future medical service is of econdary importance, but whatever its form I do feel hat the medical man of the future should be able to iagnose and treat all the common diseases (and surely uberculosis and venereal disease are among these) vithout having recourse to an army of experts, some of vhom are only experts in name after all.

I am Sir, yours faithfully,

Feb. 11th, 1920. P. H. A.

⁂ Our correspondent covers much ground which as formed the subject of discussion, such as the overoading of the medical curriculum, the advantages of a ne-portal system, and the necessity for post-graduate evision of knowledge. But his wish to ensure that the eneral practitioner, properly trained, shall have full hances of success will be seconded by all.—ED. L.

DILEMMA AT COLEFORD: RESIGNATION OF THE NLY PANEL DOCTOR.—At the last meeting of the Frome Somerset) board of guardians the relieving officer reported hat at Coleford, a large village near Bath, owing to the esignation of a medical practitioner, there was no panel loctor resident there. He understood that the county ouncil had informed the insured persons, who required nedical advice, that their expenses in consulting medical nen would be refunded. The guardians decided that they ould do nothing in the matter.

DEATH OF DR. W. C. LAKE.—William Charles Lake, M.D. St. Andrews, M.R.C.S., L.S.A., died recently at his residence, Teignmouth, Devon, in his ninety-fifth year. The deceased, the son of a surgeon in the Royal Navy, had practised in Teignmouth for over 40 years. He was on the honorary medical staff of the Teignmouth Hospital, for 14 years was medical officer of health for the urban district, and performed much useful work during the outbreak of cholera in 1867. Dr. Lake was highly esteemed and respected at Teignmouth, and when he retired in 1891 was the recipient of a public presentation.

Medical News.

UNIVERSITY OF CAMBRIDGE: DIPLOMA OF PSYCHOLOGICAL MEDICINE.—Courses in preparation for both parts of the diploma are being arranged at the Maudsley Hospital, London, in the afternoons, beginning early in March. Sir Frederick Mott, Dr. F. Golla, Dr. J. P. Lowson, Dr. C. H. Bond, Sir H. Bryan Donkin, Dr. F. C. Shrubsall, Dr. W. MacDougall, and Dr. Bernard Hart will take part in tuition. Dates and hours to be announced later.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians on Jan. 29th, and of the Council of the Royal College of Surgeons on Feb. 12th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following 67 candidates (including 7 women) who have passed the requisite examinations and have complied with the by-laws of the Colleges:—

Mohamed Khalil Abdel-Khalik, Cairo and Middlesex Hosp.; Henry Edwards Archer, St. Bart.'s Hosp.; Hubertus Adriaan Moorrees Bosman, Heidelberg Univ.; Doris Irene Bosworth, Birmingham Univ.; Percy James Briggs, Cambridge Univ. and Guy's Hosp.; Elliott Fraser Brown, Birmingham Univ.; Joseph Henderson Bulcock, Manchester Univ.; Harold George Burford, Oxford Univ. and Guy's Hosp.; George Frederic Burnell, Charing Cross Hosp.; Frederick Wyndham Chamberlain, Middlesex Hosp.; Gilbert Leedham Clements, Birmingham Univ.; Maurice Coburn, Guy's Hosp.; John Joseph Coghlan, London Hosp.; Bernard Hedley Cole, Cambridge Univ. and St. Bart.'s Hosp.; Alison Margaret Collie, St. Mary's Hosp.; Arthur Cedric Mears Coxon, Cambridge Univ. and Guy's Hosp.; Geoffrey Wright Dando, Birmingham Univ.; Andrew Norman Macdonald Davidson, King's Coll. Hosp.; Charles Owen Davies, Liverpool Univ.; David Justin Davies, Middlesex Hosp.; Thomas Draper, Edinburgh Univ.; William Edge, London Hosp.; Isaac Frost, St. Bart.'s Hosp.; Lawrence Paul Garrod, Cambridge Univ. and St. Bart.'s Hosp.; Mary Isabel Alleyne Grimmer, Durham Univ. and Charing Cross Hosp.; Edward Anthony Hawke Grylls, Cambridge Univ. and London Hosp.; George Cleverdon Hartley, Birmingham Univ., Frank Sutcliffe Horrocks, Manchester Univ.; Charles Arundel Hutchinson, London Hosp.; Evelyn Hope Johnson, Manchester Univ.; Oswald Edward Kennedy, Queen's Univ., Kingston, and London Hosp.: Joseph Victor Landau, St. Bart.'s Hosp.; Frank Fawckner Langridge, London Hosp.; Gordon Parmiter Lindsay, Guy's Hosp.; Patrick Thomas McIlroy, Queen's Univ., Kingston; Syed Francis Mahmood, St. Bart.'s Hosp.; Ida Caroline Mann, Royal Free and St. Mary's Hosp.; Grant Massie, Guy's Hosp.; Tete Mensa-Annan, Cambridge Univ. and King's Coll. Hosp.; Oscar Gerald Misquith, Cambridge Univ. and St. George's Hosp.; Abdel Wahhab Mooro, Cairo and St. Bart.'s Hosp.; Clement Nicory, St. Thomas's Hosp.; Francis Ambrose O'Reilly, Queen's Univ., Kingston, and Charing Cross Hosp.; Spencer Tauria Parker, Otago Univ.; Edgar Francis Jones Peregrine, Cardiff and St. Mary's Hosp.; *George Perkins, Oxford Univ. and St. Thomas's Hosp.; *Hugh Hamilton Perry, Manitoba Univ. and London Hosp.; Norman August Marais Petersen, London Hosp.; Gosford James Preston, Queen's Univ., Kingston, and Charing Cross Hosp.; Leonard Ignatius Roberts, Univ. Coll. Hosp.; Roland Ephraim Rawson Sanderson, Cambridge Univ. and St. Bart.'s Hosp.; Harry Norman Schapiro, Guy's Hosp.; Frank Paul Schofield, Campbell Shaw, and Gerald Maurice Joseph Slot, St. Bart.'s Hosp.; Syed Sarwar Hussain Sofi, Hyderabad and London Hosp.; Saravanamuttu Somasundram, Ceylon and Middlesex Hosp.; Stephen Douglas Sturton, Cambridge Univ. and St. Bart.'s Hosp.; Walter Aslatt Turner, Guy's Hosp.; †Kathleen Suzanne Vine, Royal Free Hosp.; Norman Victor Wadsworth, Guy's Hosp.; Alfred Douglas Weeden, Middlesex Hosp.; Clement John Lethbridge Wells and John Stanley White, St. Bart.'s Hosp.; Kathleen Mary Wilkinson, Birmingham Univ.; Donald Woods Winnicott, Cambridge Univ. and St. Bart.'s Hosp.; and Jane Edith Wood, Leeds Univ.

* Diploma of M.R.C.S. conferred on Nov. 11th last.

† Diploma of M.R.C.S. alone conferred.

The Diploma in Public Health was also conferred (in conjunction with the Royal College of Surgeons) upon the 15 candidates whose names were published in THE LANCET of Feb. 14th, p. 405.—It was decided to hold an examination in Public Health, Parts I. and II., in April next, commencing on the 19th and 26th respectively.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on Feb. 12th, Sir George H. Makins, the President, being in the chair.—It was resolved to grant diplomas of Membership to 65 successful candidates; and diplomas in Public Health were granted to 15 candidates, in conjunction with the Royal College of Physicians of London.—Mr. John Murray was re-elected a Member of the Court of Examiners.—It was resolved to grant the honorary Fellowship to the following surgeons: M. A. Depage, Surgeon to His Majesty the King of the Belgians; M. Pierre Duval, Professeur à la Faculté de Médecine de Paris; Professor J. M. T. Finney, Professor of Surgery, Johns Hopkins University; M. A. Gosset, Professeur à la Faculté de Médecine de Paris; Professor Charles H. Mayo, Professor of Surgery, Mayo Foundation for Medical Education and Research, University of

Minnesota.—It was resolved that the presentation of the diplomas to the newly elected honorary Fellows should take place on July 8th next.—Dr. W. S. A. Griffith was reappointed the representative of the College on the Central Midwives Board for the period of one year, and the best thanks of the Council were given him for his services on that Board during the past year.—The President reported that he had reappointed Mr. William F. Haslam the representative of the College on the medical board of the University of Wales for three years.—The President reported that in pursuance of the provisions of the Bradshaw bequest he had appointed Sir Berkeley Moynihan as Bradshaw lecturer for the ensuing year.—In accordance with a report from the Committee of Management, certain alterations in the conditions for the examinations in Tropical Medicine were approved and adopted. It was also approved that the Committee of Management should be requested to report on the subject of special diplomas, with appropriate regulations for curriculum and examination in each of the subjects to be dealt with.—A committee to consider the question of the representation of Members of the College on the Council was elected.—The President reported that a meeting of Fellows would be held at the College on Thursday, July 1st next, for the purpose of electing three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Anthony A. Bowlby, Mr. W. Harrison Cripps, and Sir D'Arcy Power. The last day for the nomination of candidates will be March 15th. A voting paper will be sent to every Fellow whose address is registered at the College.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH: MORISON LECTURES.—The Morison Lectures will be delivered before the Royal College of Physicians of Edinburgh by Dr. R. Gundry Rows, C.B.E., on Monday, Wednesday, and Friday, March 1st, 3rd, and 5th, 1920, at 5 P.M. The subject of the lectures is announced as Mental Illnesses.

THE TUBERCULOSIS SOCIETY.—A general meeting of the society will be held at the rooms of the Medical Society, 11, Chandos-street, Cavendish-square, to-day, Saturday, Feb. 21st, at 8 P.M., when Dr. Halliday Sutherland will open a discussion on "The Need for a Diploma in Tuberculosis."

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part II. (completing examination).—Bernard Archibald Astley-Weston, Hilda Mary Brown, Daniel Gingell Cossham, Sukhasagar Datta, and Frederick Viel Jacques.

Part I. only.—Khai Way Chan, Marjorie Wadsworth.

SECOND EXAMINATION FOR THE DEGREE OF B.D.S.

George Norman Beason.

SECOND EXAMINATION FOR THE DIPLOMA IN DENTAL SURGERY.

William Bayly, Leslie Clifford Bodey, and Evan Elwyn Lewis.

EXAMINATION FOR THE DIPLOMA IN PUBLIC HEALTH.

Walter Henderson Scott.

UNIVERSITY OF LONDON.—Dr. Herbert Eldon Roaf has been appointed to the University Chair of Physiology tenable at the London Hospital Medical College, and Professor Thomas Swale Vincent to the University Chair of Physiology tenable at the Middlessex Hospital Medical School.—The Senate has passed a resolution expressing appreciation of the generosity of Messrs. S. B. and J. B. Joel in presenting £20,000 for the endowment of a University Chair of Physics tenable at the Middlesex Hospital Medical School. Steps are being taken immediately for the appointment of the first incumbent of this professorship, which will bear the name of the donors.—A University Studentship in Physiology, of the value of £50 for one year, will be awarded to a student qualified to undertake research in physiology and will be tenable in a physiological laboratory of the University or of a school of the University. It will be awarded annually if a candidate of sufficient merit presents himself. A student will not be eligible for re-election, and candidates must be matriculated students or graduates of the University and must submit a statement of their qualifications and the names of three referees. Applications must be made on or before May 31st.—The University medal in Branch I. (Surgery) of the M.S. Examination for internal and external students, December, 1919, has been awarded to Edward Gustave Slesinger, B.Sc., of Guy's Hospital.—Fifteen medical entrance scholarships and exhibitions of an aggregate total value of about £1260, tenable in the Faculty of Medical Sciences of University College and King's College and in the medical schools of Westminster Hospital, King's College Hospital, University College Hospital, the London (Royal Free Hospital) School of Medicine for Women, and the London Hospital, will be offered for competition on June 29th, 1920. Full particulars may be obtained from the secretary of the Board, S. C. Ranner, M.A., Medical School, King's College Hospital, Denmark Hill, London, S.E.5.

CAPETOWN UNIVERSITY MEDICAL FACULTY.—Professor Crichton, a graduate of Dublin University, has been appointed to the Chair of Obstetrics and Gynæcology in the University of Capetown. He has studied in Dublin, Berlin, and Heidelberg, and has held the position of external maternity assistant at the Rotunda Hospital, and later that of assistant master of this hospital. He served during the war in the R.A.M.C. as surgeon in the 1st Eastern General Hospital, and with the Egyptian Expeditionary Force, and was mentioned in despatches in 1917. The institution of this chair, together with the previous appointments to the chairs of medicine and surgery, represents a further stage in the organisation of the Medical Faculty of the Capetown University, and enables the University to complete this year the necessary arrangements for a full medical undergraduate curriculum and the granting of degrees in medicine and surgery. A post-graduate course in public health will be instituted this year also, and will lead to a University Diploma in Public Health, corresponding to that granted by many British Universities and regarded as an essential qualification for medical men who are engaged in public health services.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—Emeritus Lectures will be delivered at the school on Feb. 26th by Sir Alfred Pearce Gould, and on March 5th by Sir Richard Douglas Powell. The lectures will be delivered at 3 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL.—The annual dinner of past and present students of the Royal London Ophthalmic Hospital will be held at the Criterion Restaurant, Piccadilly, on Thursday, March 11th, at 7 for 7.30 o'clock, Mr. William Lang, consulting surgeon to the hospital, presiding. Those intending to be present should communicate as soon as possible with Mr. Charles Goulden, 42, Welbeck-street, London, W.1.

NO. 19 CASUALTY CLEARING STATION.—It is proposed to hold a 19 C.C.S. dinner in London on Saturday, Feb. 28th, at the Trocadero Restaurant, Piccadilly Circus, W., at 7.30 P.M., when it is hoped that many officers of the unit will be able to be present, while members of other C.C.S.'s and all who were associated with the station are cordially invited to attend. Applications for tickets should be made as soon as possible to the Rev. E. C. Doddrell, at 6, Alexandra House, Regent's Park-road, N. 3.

WORKERS FOR SERBIA.—A dinner will be held on Monday, March 1st, at 7 for 7.30 P.M., at the Wharncliffe Rooms, Great Central Hotel, to give an opportunity for social re-union to those who have worked during the war on behalf of Serbia. The committee of the dinner, which is widely representative of those who have served abroad for the Serbians, announce that already tickets have been taken by men and women associated with most of the medical missions or with the motor transport attached to the Royal Serbian Army. They also call attention to the fact that at this Service dinner men and women are alike eligible as participants. Tickets, 15*s.* each (exclusive of wine), may be obtained from the honorary secretary, Miss Marx, 24, Melcombe-court, Dorset-square, N.W.1.

RESIDENTIAL TUBERCULOSIS TREATMENT: A CONFERENCE OF MEDICAL OFFICERS.—A conference of the medical superintendents of sanatoriums, training colonies, and other residential institutions for cases of tuberculosis has been called for Monday, Feb. 23rd, 4 P.M., at 122, Harley-street, to discuss the problems which specially concern such institutions. The invitation to this conference is signed by Dr. Esther Carling (Peppard), Mr. E. H. T. Nash (Preston Hall), Dr. A. Niven Robertson (Benenden), Mr. P. C. Varrier-Jones (Papworth Hall), Dr. Jane Walker (Nayland), Dr. James Watt (Downs, Sutton), and Dr. R. C. Wingfield (Frimley), and states that there is at present no recognised body of medical men or women to whom to turn for the advancement of the institutional treatment of tuberculosis. Many new problems are arising, and it is felt that there ought to be some means of communication and discussion between medical men and women specially interested in this work. By such means experiences can be exchanged, new ideas on treatment and administration brought forward and sifted, certain standards set up and recognised as essential in the residential treatment of tuberculosis, and greater weight given to individual recommendations which have received the approval of a body of expert opinion. Through the action of a vigorous society, an impetus can be given to the improvement of administrative and therapeutic methods. The subjects likely to come up for discussion at this conference are the appointment of a special committee to consider and report on the standards of treatment to be aimed at in institutions for tuberculosis; sanatorium nurses in relation to general training; the treatment of advanced and dying cases; and the granting of leave to patients at holiday times. Quarterly meetings are suggested.

The Society of Apothecaries has awarded the Gillson scholarship for original research in pathology of the annual value of £105 to Dr. A. L. Urquhart, of St. Thomas's Hospital.

National Health Week.—The Lord Mayor, in his capacity [redacted] chairman of the National Health Week Committee, appointed by the Royal Sanitary Institute, has received letters from the King and Queen acceding to a request for Royal patronage of the 1920 celebration of Health Week, which has been arranged to take place throughout the country from May 2nd to the 8th.

Hygiene as a Remedy for Social Unrest.—A lecture on this subject was delivered at the Institute of Hygiene on Feb. 11th by Mr. Grant Ramsay, F.R.E.S., Principal of the Institute, Sir Arthur Yapp in the chair. Mr. Ramsay said that two peaceful revolutions were prominent to-day: the labour cause, and woman's "so-called emancipation." The one affected the country's future and the other the future race, but both were going too fast. There was good reason for shorter hours at the present time, and even six hours a day was too long for certain classes of work, but with better organisation, better feeding, better housing, and change in work there was no reason why any fit man should not do 12 hours a day. That might be called intensive labour, and would require to be entered upon in courses and in the spirit of a good dinner, but it would benefit the worker himself and greatly help the country. The woman's movement was marked less by emancipation than by climbing down to the level of men, but, while the disproportion of the sexes remained, justice demanded that every vocation should be free and open to them. The primary duty was maternity. The lecturer had investigated the question of the falling birth-rate in France 30 years ago, and had concluded that the chief cause affecting maternity was the psychological influence traceable to the degree in which French women shared their husbands' worries in business as well as in the home. Excitement and gaiety also adversely affected the birth-rate. Hygiene was a very sound remedy for social unrest, as the principles of hygiene require moderation in all things, and never was moderation so necessary as now. The country was a great invalid requiring every care in convalescence, and those who were dancing mad and living riotously were simply patients in a state of delirium. Steady work and sobriety in living was the great panacea, and we could not have real peace until we settled down.

Reconstruction of Clinical Teaching: the Position at St. Bartholomew's Hospital.—The reorganisation of clinical teaching at St. Bartholomew's Hospital is now approaching completion. As we have already announced, two professorial clinical units began their work on Oct. 1st. The director of the medical unit is Sir Archibald Garrod, the assistant director Dr. F. R. Fraser, and the chief assistants Dr. A. E. Gow and Dr. George Graham. Dr. Fraser, son of the late Sir Thomas Fraser, was educated at Cambridge and Edinburgh, and was recently consulting physician to the British Army at Cologne. He has held the posts of assistant physician to the Presbyterian Hospital, New York, instructor in clinical medicine at the Columbia University, and assistant resident physician to the Rockefeller Institute for Medical Research. He took up his duties at St. Bartholomew's on Feb. 1st, and his appointment completes the medical unit there. The surgical unit is under the direction of Mr. George E. Gask, and the post of assistant director has recently been filled by the appointment of Mr. T. P. Dunhill, surgeon to the St. Vincent's Hospital, Melbourne, who during the war acted [redacted] a consulting surgeon to the British Army in France. The chief assistants are Mr. R. Ogier Ward and Mr. G. L. Keynes. Each of these units is provided with clinical laboratories of its own for routine pathological work and research. They each take their share of the ordinary hospital duties, and are linked up so as to be in daily communication and consultation. Not only have these units been set up, in which the directors are devoting their whole time to the duties of teaching and research, but the other medical and surgical clinics have been reconstituted by the appointment to each of a chief assistant who acts [redacted] registrar to his unit, supervises the routine clinical pathology connected with it, and gives instruction to the students in this work. The pathological department has undergone reconstruction. In addition to Professor F. W. Andrewes, who is head of the department, Dr. M. H. Gordon is bacteriologist to the hospital and lecturer on bacteriology; Dr. B. H. Spilsbury supervises the post-mortem examinations and is lecturer on morbid anatomy and histology; and Dr. R. L. Mackenzie Wallis is chemical pathologist to the hospital and lecturer on chemical pathology. Three senior demonstrators have been appointed as whole-time pathologists and, in addition, three junior demonstrators as part-time officers.

Royal Medical Benevolent Fund.—At the last meeting of the Committee, held on Feb. 10th, 17 cases were considered and £183 2*s*. voted to 14 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 38, of M.D. Dub. who practised in Dublin. Applicant is a trained nurse, but is unable to work at present on account of ill-health of self and child. Pays 5*s*. a week rent for one room. Relieved four times, £29. Voted £10.—Widow, aged 38, of L.R.C.P. Edin. who practised at Battersea and died in 1917. Has been living on her capital, which is now entirely exhausted. Has three children, ages 12, 10, and 4, and is without means, and two of the children are ill. Has been living for some time on the sale of her furniture, as she cannot take a situation on account of the children. Rent 17*s*. for two rooms. Relieved once, £10. Voted £5 and a special grant of £2 2*s*.—Widow, aged 61, of L.S.A. Lond. who practised at Limehouse and died in 1894. Was left unprovided for with two daughters, now aged 27 and 26. The elder one earns £60 a year and the younger £40, and between them they pay their mother £60. Applicant earns £13 by needlework. Rent and rates £35. Relieved 12 times, £140. Voted £18 in 12 instalments.—Daughter, aged 58, of F.R.C.S. Eng. who practised in Bedfordshire and died in 1890. Has no income. She receives £13 from the Guild. Rent 4*s*. a week. Relieved 14 times, £136. Voted £18 in four instalments.—Daughter, aged 57, of M.R.C.S. Eng. who practised at Hadleigh and died in 1877. Applicant received £18 from dividends and £21 from another charity. Does a little needlework occasionally. Rent 10*s*. 6*d*. for two rooms. Relieved four times, £38. Voted £18 in 12 instalments.—Daughter, aged 73, of L.S.A. Lond. who practised at Christchurch and died in 1880. Only certain income £47 from dividends. Applicant is an artist and occasionally sells a picture. Pays £3 per week for board and lodging. Relieved four times, £63. Voted £9 in six instalments.—Daughter, aged 61, of M.D. Lond. who practised in North London and died in 1868. Acts as housekeeper or does a little nursing when her health permits. Receives £26 from another charity and £12 from friends. Rent 10*s*. a week for one room. Relieved six times, £36. Voted £12 in 12 instalments, and a special grant of £2.—Daughter, aged 61, of M.R.C.S. Eng. who practised at Sheffield and died in 1867. At present she has a temporary post as a clerk at £65 a year, but this may cease at any time. Only other income £30 from another charity. Cannot manage owing to the high cost of living. Board and lodging 26*s*. a week. Relieved twice, £24. Voted £12 in 12 instalments.—Widow, aged 70, of M.R.C.S. Eng. who practised in East London and died in 1906. Was left unprovided for with six children; four of them are now married and are unable to help. Eldest daughter is a teacher and pays the rates and taxes, £22; the other daughter helps at home. Applicant takes in boarders. Rent £38. Relieved by the Fund many years ago and again in 1913, when she was granted £12. Voted £10.

Subscriptions may be sent to the honorary treasurer, Sir Charters J. Symonds, C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Royal Victoria Hospital, Edinburgh: Tuberculosis Trust.—At the annual general meeting Mr. Charles Cook, W.S., the chairman, said that there had been a growing feeling on the part of those best entitled to speak that treatment hitherto had been directed too exclusively to the pulmonary forms of tuberculosis. It must be kept in mind that tuberculosis of the lungs [redacted] frequently a late manifestation, which might have been checked more readily had it been taken at an earlier stage. Many other parts of the body besides the lungs were prone to the attacks of tuberculosis. The modern view was that for the most part tuberculosis was contracted in childhood, and that if detected and treated early its disastrous effects in adult life would be much reduced. They had come to the conclusion that in the future they should have regard to two aspects of the subject (1) the treatment of tuberculosis in whatever organ it occurred at any age, and (2) the investigation and development of lines of treatment for all particular forms of the disease. They had decided to establish a farm colony on national lines which would be available for the prolonged care and treatment of all forms of tuberculosis in the curable stage. Preference was to be given to soldiers, sailors, and others who had contracted the disease or had it aggravated by war service, and such preference was also to be extended to their families. Thereafter admission would be given to suitable cases from all parts of Scotland. It was hoped to combine the benefits of a sanatorium and training school. With this object, and with the coöperation of the National Association for the Prevention of Tuberculosis, they had acquired the beautifully situated estate of Southfield, in the parish of Liberton, at a cost of £9400. The grounds extended to about 33 acres, and the existing house and offices would provide accommodation for approximately 40 patients.—Sir Robert Philip outlined briefly the history of the movement for the prevention of tuberculosis, and alluded to the wise policy which had led to the establishment of the farm colony, and to the good results which should be obtained therefrom. Sir Arthur Stanley, in moving the adoption of the report, after referring to the Government campaign against tuberculosis and the part which could be played by voluntary helpers, expressed the hope that by means of the international league at Geneva, established under the auspices of the Red Cross, every country of the world could obtain full information [redacted] to how disease was being treated in other countries.

THE INDUSTRIAL ORTHOPÆDIC SOCIETY.—The following appointments have been made on the honorary visiting staff of Manor House Hospital, Hampstead: Mr. Russell J. Howard, M.S., F.R.C.S. (senior surgeon), and Mr. C. Jennings Marshall, M.D., M.S., F.R.C.S.

ST. MARK'S HOSPITAL.—The Lord Mayor of London, presiding at the eighty-fourth annual meeting of St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum, City-road, in moving the adoption of the report, drew attention to the fact that £2300 are owing to the bankers, and appealed for help to wipe out that debt and to meet ordinary expenditure. During the year the hospital treated 1509 out-patients and 655 in-patients. The fact that the latter number was lower in 1919 than in 1918 was explained by the increase in serious cancer cases requiring long treatment.

PRESTON HALL COLONY.—At this Kentish tuberculosis colony, which is being run by the Industrial Settlements, Ltd., it is expected that 43 places will be available next month. The charge is to be 45*s.* a week, and each applicant must undertake to stay for a period not less than six months. Patients are admitted either directly from a sanatorium or upon the certificate of a tuberculosis officer. Only those without tubercle bacilli in their sputum are admitted.

DIPHTHERIA IN CORNWALL.—At the last meeting of the Phillack (Cornwall) urban district the medical officer of health reported that during the past month three deaths had occurred from diphtheria. There had been 19 cases of diphtheria and 4 of scarlet fever. The medical officer of health considered this a very grave state of affairs, and expressed regret that after all the expense of providing welfare nurses, &c., children should be lost through the want of proper isolation accommodation.

MANCHESTER PATHOLOGICAL SOCIETY.—Sir Walter Fletcher, secretary of the Medical Research Committee, will give an address in the Medical School of Manchester University on Tuesday, Feb. 24th, at 5 P.M., on "Medical Research after the War," to which medical practitioners and students are invited.

LIVERPOOL OVERSEAS MEDICAL OFFICERS' DINNER.—Under the chairmanship of Major-General Sir Robert Jones, K.B.E., C.B., the second annual dinner of the local overseas medical officers was held in the Exchange Hotel, Liverpool, on Feb. 13th. About one hundred were present. The toast list was a short one, and the speeches were characterised by a soldierly briefness. There was no musical programme, those present finding sufficient entertainment in reminiscences of the great days through which they had lived in every corner of the zone of war. Altogether a most enjoyable evening was spent. The back of the menu was adorned with a design by Colonel John Hay, in which, out of compliment to the chairman, Thomas's splint was a special feature.

MOBILE LABORATORY FOR THE WELSH NATIONAL SCHOOL OF MEDICINE.—The mobile laboratory originally presented to the War Office by Lady Lynn Thomas for work with the Welsh Forces in France, where it was manned by Professor E. Emrys-Roberts, has, through the timely action of these two persons, been presented by the War Office to the Welsh National School of Medicine. It is to be taken charge of by the City of Cardiff and County of Glamorgan Joint Laboratory Committee for use in public health service.

NEW HOSPITAL FOR YEOVIL.—At the recently held annual meeting of the friends of the Yeovil Hospital it was stated that plans for a new hospital had been received, and the work would shortly be commenced. The cost of the building is estimated at £30,000, exclusive of the fitting up of the institution. The committee has about £11,000 in hand, and a strong effort is to be made to obtain the necessary funds.

SHEFFIELD CORPORATION AND PARENTAL NEGLECT.—In a test case bearing on the meaning of "neglect" in the care of mental defectives recently argued in Sheffield the corporation failed to establish their claim, and judgment was given against them. A youth of 20 had been certified as mentally defective and sent to an institution. His parents, unsuccessful in their initial claim for his release, based on their dissatisfaction with his training, appealed to the law. The corporation's case depended on the interpretation of the meaning of the word neglect, as by the Mental Defectives Act of 1913 neglect is one of the reasons for which a mental defective may be placed in an institution. The court granted the parents' application, Mr. Justice Greer ruling that there was nothing in the home circumstances to justify the supposition of neglect. The case is exciting some interest, as the decision is regarded in legal circles in Sheffield as a proof that elucidation of the Act is desirable.

HONOUR FOR PROFESSOR TUFFIER.—His Majesty the King has been pleased to approve the appointment of Professor Tuffier to be an Honorary Knight Commander of the Order of the British Empire, and the appropriate insignia have been forwarded to His Majesty's Ambassador at Paris for presentation. This recognition of Professor Tuffier's services to the wounded British officers and men brought into Paris during the early phases of the war, and of his kindly and untiring efforts to make the Inter-Allied Surgical Conferences a success, will be regarded with general satisfaction by all those who enjoyed the pleasure and privilege of working in association with him. It is significant that this is an honour awarded to a temporary consulting surgeon in the civilian medical branch of a foreign nation.

CINEMA FOR HOSPITAL PATIENTS.—Through the kindness and generosity of a Brighton resident the patients of the Royal Sussex County Hospital have been given a cinematograph entertainment, which was much appreciated.

DEVON EDUCATION COMMITTEE: THE TEETH OF SCHOOL CHILDREN.—The school medical officer for the Devon Education Committee reports that in the Exeter district 693 parents (21 per cent.) refused to allow their children to be treated by the school dentist; in Plymouth 718 parents (39 per cent.) refused the treatment. Some of the members of the Committee regarded this state of things as a perfect scandal, and thought the treatment should have been made compulsory by Act of Parliament.

BRISTOL MEDICAL DRAMATIC SOCIETY.—After a lapse of six years this society has renewed its annual performance, the play chosen being *The Younger Generation*, by Stanley Houghton. The caste, which has hitherto included members of the teaching staff and a few friends not connected with the Medical School, was for the first time composed entirely of medical students, men and women. This new departure was justified by results and achieved general satisfaction. The performance was the thirty-seventh which has been given by the society.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 11TH.

Honours for Army Nurses.

Brigadier-General CROFT asked the Secretary for War whether his attention had been called to the fact that a great many trained nurses, who served as nursing sisters on active service continuously from August, 1914, onwards, had now been released from service without any official expression of gratitude for their services; whether he was aware that several cases of nurses who were recommended in the strongest terms by their commanding officers for the Royal Red Cross, First Class, in recognition of exceptional services in the actual war zone, had been passed over, whilst nurses, in many cases untrained and who never left home duty, had received this honour; and whether, in view of these facts, he would cause inquiry to be made with a view to securing justice to those who had been strongly recommended for this honour.—Mr. CHURCHILL replied: All trained nurses who served under the War Office as nursing sisters on active service have on being demobilised received an official letter conveying thanks for their services. Recommendations for the award of the Royal Red Cross, whether at home or abroad, are in all cases made by the general officer commanding under whom the person recommended has served, and so far as I am aware there have been no cases in which nurses serving abroad, who have been so recommended, have not been given the decoration.

THURSDAY, FEB. 12TH.

Vaccination Acts Amendment.

Mr. CHARLES EDWARDS asked the Minister of Health whether he would consider amending the Vaccination Acts of 1862–98 and 1907, so that compulsory vaccination and penalties for non-compliance would be repealed, and that it should be left to the parent or person having the custody of the child to determine whether or not the child should be vaccinated, without having to make a declaration before a justice of the peace.—Dr. ADDISON replied: No, Sir; the dangers to the health of the community that would be involved in the adoption of the honourable Member's suggestion are too great to admit of it being considered.

Gratuity for Army Masseuses.

Major HURST asked the Secretary for War whether masseuses of the military massage service were entitled to receive gratuities on the termination of war service; and, if not, why there should be any differentiation between them and other nursing sisters.—Sir A. WILLIAMSON replied:

War gratuities, broadly speaking, are given to commissioned fficers and enlisted soldiers and are not given to the very arge number of civilians, men and women, who in various ways worked for the army during the war. An exception to his rule was made in the case of Queen Alexandra's mperial Military Nursing Service and other staff performng similar duties, for special reasons and in accordance with precedent; but after very full consideration I am not prepared to extend this exception.

Pensions Medical Referees.

Mr. DOYLE asked the Minister of Pensions whether, in egard to War Pensions Committees, medical men could be paid for services rendered in connexion with appeal cases.—Sir L. WORTHINGTON-EVANS replied: Under the new procedure detailed in Circular 201, which was addressed to local War Pensions Committees on Dec. 23rd, the services of medical referees are no longer required in connexion with he forwarding of appeals to the Pensions Appeal Tribunals. The question of payment therefore does not now arise.

MONDAY, FEB. 16TH.

Extra Grant to Workmen's Medical Associations.

Mr. T. GRIFFITHS asked the Minister of Health if he would state why the extra grant made to medical men and chemists o meet the increased price of drugs and cost of living had not been paid out to medical men engaged by workmen's medical associations.—Dr. ADDISON (Minister of Health) replied: If the honourable Member is referring to institutions recognised under Section 15 of the Insurance Act I must refer him to the answer given on Oct. 29th to the honourable Member for West Nottingham. The Friendly Societies Medical Alliance has still failed to send in the requisite information as regards institutions in England. Information has recently come in from certain institutions n Wales, and this is under consideration with a view to determining such grants as may be due.

Dogs' Protection Bill.

Sir F. BANBURY presented a Bill "to prohibit the vivisection of dogs," which was supported by Sir J. BUTCHER and Mr. FREDERICK GREEN. The Bill was read a first time.

TUESDAY, FEB. 17TH.

Mental Cases in Military Hospitals.

Lieutenant-Colonel GUINNESS asked the Secretary for War whether, in view of the great anxiety felt by the relations of missing men owing to reports that military hospitals contained cases of such severe mental trouble that identity could not be established, he would arrange to publish photographs of all such patients in the press or otherwise, and would also collect all these cases in one hospital where they could be seen by the relatives who still had hopes of tracing men who had been reported missing.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: There is now only one soldier of the Imperial Forces who is unidentified owing to mental trouble.

Army Medical History Sheets.

Colonel ASHLEY asked the Secretary for War whether he would consider the question of furnishing each man on discharge or demobilisation with a copy of his army medical history sheet, as the possession of this evidence would very materially assist men in establishing their statutory right to a pension.—Sir A. WILLIAMSON: Army medical history sheets are confidential, and it would be contrary to the practice of the War Office to furnish copies of them to the men concerned or to other individuals. Apart from this, the course suggested by the honourable and gallant Member would involve a great amount of additional clerical work and appears to be quite unnecessary. The medical history sheets of all soldiers invalided from the army are sent to the Ministry of Pensions, and in cases where men discharged in the ordinary way subsequently claim a disability pension their medical history sheets and other documents are always obtained by the Ministry of Pensions from the Record Office.

Rehearing of Pensions Appeals.

Colonel ASHLEY asked the Pensions Minister whether, in view of the fact that a statutory right to pension had now been conceded and new tribunals unconnected with the Ministry of Pensions were being set up to deal with claims, an opportunity would be given for the rehearing of appeals disallowed by the appeal tribunals under the jurisdiction of the Ministry, as in many cases great hardship had resulted from the decision of the tribunal in question.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The class of case to which my honourable and gallant friend refers is specifically excluded from the right of further appeal by the War Pensions (Administrative Provisions) Act, 1919, and the reasons for its exclusion were explained in the debate which preceded the passing of the Act. The appeal tribunals set up under the Ministry were not subjected to any interference by this Department and only differed from the present tribunals in that their decisions were not legally binding on the Minister, although almost invariably accepted by him.

Appointments

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDREWS, J. A., has been appointed Medical Officer for the Bovey Tracey district by the Newton Abbot Board of Guardians.

FORSYTH, J. A. CAIRNS, M.Sc., F.R.C.S., Surgeon to Out-patients, Royal Waterloo Hospital for Children and Women.

LUCE, Sir R., K.C.M.G., C.B., to be one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 19.

MALLAM, W. A., M.R.C.S., L.R.C.P. Lond., Medical Director of the International Hospital, Naples, Italy,

TAPPER, K., Assistant Medical Officer for the County of Dorset.

WOOD, W. V., M.R.C.S., L.R.C.P., Medical Officer for the Yatton (Somerset) District.

WOODFORDE, A. W. G., M.B., B.S. Lond., Honorary Registrar to the Samaritan Hospital for Women, Liverpool.

Great Northern Central Hospital: GRAHAM, G., M.D., M.R.C.P. Lond., and ADEY, W. J., Physicians with charge of Out-patients; SOUTER, M. J. K., L.D.S. R.C.S., Assistant to the Dental Surgeon.

St. Thomas's Hospital: CARDELL, J. D. M., M.R.C.S., L.R.C.P. Lond., POTTER, A. F., M.R.C.S., L.R.C.P., STORMER, H. G., M.R.C.S., L.R.C.P., BILLINGTON, C. M., M.R.C.S., L.R.C.P., COOKE, R. C., M.R.C.S., L.R.C.P., HALE, J., M.R.C.S., L.R.C.P., SPENCE, D. B., M.R.C.S., L.R.C.P., WOOD, F. G., M.R.C.S., L.R.C.P., Casualty Officers and Resident Anæsthetists; DAWSON, W. S., M.A., M.B., B.Ch. Oxon, M.R.C.S., L.R.C.P., WHITCOMBE, R. C. P., B.A. Cantab., M.R.C.S., L.R.C.P., WARE, S. A. T., M.R.C.S., L.R.C.P., PROCTER, R. A. W., M.R.C.S., L.R.C.P., Resident House Physicians; SMITH, J. FOREST, M.R.C.S., L.R.C.P., Resident House Physician for Children; ROBINSON, R. H. O. B., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., WAYTE, J. W., M.B., B.S. Lond., M.R.C.S., L.R.C.P., PERKINS, G., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., HUMPHREYS, R. M., M.B., B.Ch. Oxon., Resident House Surgeons; MARINER, H. I., M.R.C.S., L.R.C.P., Resident House Surgeon for Ear, Nose, and Throat; HIGGINS, L. G., M.R.C.S., L.R.C.P., House Surgeon; RICHARDSON, A. H., M.B., B.C. Cantab., F.R.C.S. Eng., GARSON, H. L., M.R.C.S., L.R.C.P., Obstetric House Physicians; WALKER, J. P. S., M.B., B.Ch. Oxon., BROCKMAN, E. P., M.R.C.S., L.R.C.P., Ophthalmic House Surgeons; CAVENAGH, J. B., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., DOORLY, A. R. C., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Clinical Assistants to Throat Department; GARDINER-HILL, H., M.B. Cantab., M.R.C.S., L.R.C.P., HALLIWELL, A. C., M.R.C.S., L.R.C.P., Clinical Assistants to the Skin Department; BRETT, P. C., M.R.C.S., L.R.C.P., SPROTT, N. A., B.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., Clinical Assistants to the Ear Department; SPEAR, F. G., M.R.C.S., L.R.C.P., Clinical Assistant to the Electrical and X Ray Department.

Certifying Surgeons under the Factory and Workshop Acts: FFOULKES, M., M.R.C.S., L.R.C.P. Lond. (Abergele); WILLIAMS, O. E., M.R.C.S., L.R.C.P. Lond. (Mold); RICHARDS, W. G., M.B., Ch.B. Edin. (Llansawel).

Vacancies.

For further information refer to the advertisement columns.

Argyll and Bute District Asylum, Lochgilphead, Argyllshire.—Asst. M.O. £250.

Ashton-under-Lyne District Infirmary.—Third H.S. £150.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.

Bedford County Hospital.—H.P. £150.

Birkenhead Borough Hospital.—Two H.S.'s. £200 and £170.

Birmingham City Mental Hospital, Rubery Hill, near Birmingham.—Second Asst. M.O. £400.

Brighton, Hove, and Preston Dispensary.—Res. M.O. £200.

Brighton, Royal Sussex County Hospital.—Asst. Path. £300.

Burton-on-Trent Infirmary.—H.S. £200.

Cambridgeshire Mental Hospital, Fulbourn, near Cambridge.—Asst. M.O. £400.

Cancer Hospital (Free), Fulham-road, S.W.—Asst. Anæsth. 25 g.

Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.

Chorley Borough.—M.O.H. and School M.O. £700.

Coventry Education Committee.—Sch. Dent. £400.

Croydon County Borough Mental Hospital, Upper Warlingham, Surrey.—Second Asst. M.O. £500.

Derby, Derbyshire Royal Infirmary.—Ophth. H.S. £200.

Devonport, Royal Albert Hospital.—H.S. £200.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dover, Royal Victoria Hospital.—H.S. £180.

Dudley County Borough.—Asst. Sch. M.O. and M.O.H. £500.

Elizabeth Garrett Anderson Hospital, 144, Euston-road, N.W.—Jun. Asst. S.

Essex County Council and Clacton Urban District Council.—Asst. County M.O.H. and M.O.H. £600.

Gloucester County Borough Education Committee.—School Dent. £450.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

Govan District Asylum, Hawkhead, Cardonald, Glasgow.—Jun. Asst. M.O. £300.

Great Northern Central Hospital, Holloway, London, N.—P Asst. 300 gs. S.

Great Yarmouth General Hospital.—H.S. £200.

Hampshire County Council.—Asst. M.O.H. £540.

Huddersfield, Bradley Wood Sanatorium for Pulmonary and Surgical Tuberculosis.—Res. M.O. £500.
Ipswich, East Suffolk and Ipswich Hospital.—Bact. and Path.
Lancashire County Council, School Medical and Child Welfare Department.—Two Asst. County M.O.'s. £800.
Lancaster County Asylum.—Asst. M.O. £300.
Lindsey County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £550.
Liverpool, David Lewis Northern Hospital.—Two H.P.'s and Three H.S.'s. £150.
Liverpool Infirmary for Children.—H.S. and H.P. £90.
Liverpool, Royal Southern Hospital.—Hon. Ophthal. S. Also Hon. Asst. P.
London County Council Mental Hospitals Service.—Fifth Asst. M.O.'s. £300.
London (Royal Free Hospital) School of Medicine for Women.—Two Part-time Demonstrators in Anatomy.
London Temperance Hospital, Hampstead-road, N.W.—Medical Registrar. 40 guineas.
Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.
Maidenhead, Bray Court, Home for Neurasthenic Sailors and Soldiers.—Res. M.O. £500.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.
Manchester City Education Committee.—Asst. Sch. M.O. £600.
Manchester Royal Infirmary.—H.P.'s.
Manchester, St. Mary's Hospitals for Women and Children.—Asst. M.O. £75.
Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.
Miller General Hospital for South-East London, Greenwich, S.E.—H.P. and Registrar. £100.
Newark-on-Trent, Newark Hospital and Dispensary,—Res. H.S.
Newcastle-upon-Tyne, Hospital for Sick Children.—Hon. Asst. S.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Temp. Surg. Registrars and H.S. Also Two Temp. Hon. S. and Two Temp. Hon. Asst. S.
Northumberland County Council.—County M.O.H. and Sch. M.O. £800.
Norwich City.—Asst. Sch. M.O. £500.
Norwich, Norfolk and Norwich Hospital.—H.S. £200.
Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept. Also H.P. £150.
Notts County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £500.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S.
Roll of Honour Hospital for Children, 688, Harrow-road, W.—Clinical Asst.
Rousay and Egilshay, Orkney.—Res. M.O. £300.
Royal College of Surgeons in Ireland.—Lectureship. £150.
St. Bartholomew's Hospital and College.—Sen. Demonstr. of Physiology. £400. Demonstr. of Pathology.
Salford Royal Hospital.—Res. S.O. £250. H.P. £200. H.S., Jun. H.S., and Cas. H.S., £150 each.
Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—P. 50 gs. Three Anæsth.'s. 50 gs. H.S. £100.
Sheffield Children's Hospital.—H.S. £200.
Sheffield, East End Branch of the Children's Hospital.—H.S. £150.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Shirlett, near Much Wenlock, King Edward VII. Memorial Sanatorium.—Res. Med. Supt. £450.
Southampton, Royal South Hants and Southampton Hospital.—Sen. H.S. £250. H.P. £150.
South London Hospital for Women, South Side, Clapham, S.W.—Asst. Pathologist.
Stamford, Rutland, and General Infirmary.—H.S. £200.
Stoke-on-Trent.—Female M.O. £500.
Sunderland, Royal Infirmary, Children's Hospital.—Res. M.O. £200.
Swindon Borough.—Asst. M.O.H. £600.
Throat Hospital, Golden-square, W.—Surgical Registrar.
Turks and Caicos Islands.—M.O. £400.
Wakefield, Clayton Hospital.—Jun. H.S. £150.
Wakefield, West Riding County Council.—Sch. Med. Inspector. £500.
Westminster Hospital, Broad Sanctuary, S.W.—H.P.
Wigan County Borough Education Committee.—Part-time School Dentist. £150.
Wigan Infirmary.—Jun. H.S. £225.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Hungerford and at North Walsham.

Births, Marriages, and Deaths.

BIRTHS.

Blackstock.—On Feb. 11th, at The Elms, Eskbank, Midlothian, to Dr. and Mrs. Hall Blackstock—a daughter.

MARRIAGES.

Dunne—Henderson.—On Feb. 11th, at the Parish Church, Holy Trinity, Brompton, Major J. S. Dunne, D.S.O., R.A.M.C., to Catharine Henderson, M.B.E., only child of Admiral and Mrs. Henderson.

Keith—Mackey.—On Feb. 11th, at St. Faith's, Maidstone, William Brooks Keith, M.C., M.D., to Dora, elder daughter of Mr. and Mrs. W. J. Mackey, of The Highlands, Maidstone.

DEATHS.

Dickson.—On Feb. 11th, at Blackheath, Captain Alexander Collingwood Dickson, R.A.M.C. (retired), aged 42 years.

Murphy.—On Feb. 13th, at Military Hospital, Chisledon, of heart failure, Francis Murphy, temporary Captain, R.A.M.C.

Prior.—On the 4th Feb., at Watford, Mrs. Alice Percival Prior, widow of Richard Henry Prior, M.D., J.P., formerly of St. Albans, Herts, aged 71 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, Feb. 26th.—Papers:—Mr. L. F. Richardson: Some Measurements of Atmospheric Turbulence (communicated by Sir Napier Shaw).—Mr. W. G. Duffield, Mr. T. H. Burnham, and Mr. A. A. Davis: The Pressure upon the Poles of Metallic Arcs, including Alloys and Composite Arcs (communicated by Prof. O. W. Richardson).—Mr. J. H. Hyde: On the Viscosities and Compressibilities of Liquids at High Pressure (communicated by Prof. J. E. Petavel).—Mr. A. Russell: The Capacity Coefficients of Spherical Conductors (communicated by Dr. C. Chree).—Mr. C. Cuthbertson and Maude Cuthbertson: On the Refraction and Dispersion of Carbon Dioxide, Carbon Monoxide, and Methane.—Mr. A. A. Griffith: The Phenomena of Rupture and Flow in Solids (communicated by Mr. G. I. Taylor).

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Tuesday, Feb. 24th.

SOCIAL EVENING: at 8.30 P.M.

Mr. C. Edward Wallis will show Some Objects of Great Historical Dental Interest, kindly lent by the Wellcome Medical Museum and Mr. Joseph Ash. Mr. Wallis will also give a twenty minutes' talk on "The History of Artificial Teeth, including the Gold Bridge Work of the Ancient Etruscans."

The Library will be open, and various objects of interest will be exhibited. Music and light refreshments. It is hoped there will be a good attendance of Fellows and their friends, who will be cordially welcomed.

MEETINGS OF SECTIONS.

Monday, Feb. 23rd.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry J. Howard Mummery): at 8 P.M.

Clinical Evening. Cases (at 7.45 P.M.).

Tuesday, Feb. 24th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.

Colonel Ransom Pickard and Dr. G. W. Lloyd: Early Manifestations of Scurvy.
Dr. S. Dutton: Some Deficiency Diseases and Leprosy.

Thursday, Feb. 26th.

ELECTRO-THERAPEUTICS with the RONTGEN SOCIETY and the INSTITUTION OF ELECTRICAL ENGINEERS (Hon. Secretaries of the Section—Walter J. Turrell, Stanley Melville): from 5 to 6.45 P.M.

Dr. Reginald Morton: Efficiency of High Tension Transformers.
Major C. E. S. Phillips, O.B.E.: The Problems of Fluctuating and Alternating Currents.
Mr. R. S. Wright, M.I.E.E.: High Tension Transformers.

Discussion, Exhibition of Apparatus: from 8.15 to 10 P.M.

Friday, Feb. 27th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 P.M.

Discussion:

On "The Influence of Accessory Food Factors in Infant Feeding." To be opened by Dr. Mellanby. Professor Noel Paton, Dr. C. J. Martin, Dr. E. A. Barton, Dr. Robert Hutchison, and Dr. E. Cautley will also take part.

Members who wish to take part in the Discussion are asked to send in their names to Dr. Cameron, 23, Devonshire Place, W.

Members of other Sections are cordially invited.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, M. Greenwood): at 8.30 P.M.

Dr. Matthew Young: An Investigation into the Periodicity of Epidemics of Whooping-cough from 1870 to 1910 by Means of the Periodogram.

Those Members of the Section who wish to attend the dinner at the Welbeck Palace Hotel, at 7 P.M., are requested to notify Dr. Major Greenwood, Lister Institute, Chelsea Gardens, S.W. 1, not later than Feb. 25th.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Feb. 23rd.—8.30 P.M., Sir Charters Symonds, K.B.E., C.B.: The Surgical Treatment of the Later Stages of Gunshot Injuries of the Chest and of Empyema (illustrated by the epidiascope).—Dr. P. M. Smith: The After-results of Certain Surgical Operations.

ILLUMINATING ENGINEERING SOCIETY, at the Royal Society of Arts, 18, John-street, Adelphi, W.C.

Tuesday, Feb. 24th.—8 P.M., Discussion on Lighting Conditions in Mines, with Special Reference to the Eyesight of Miners. Dr. T. L. Llewellyn and others will take part in the discussion.

BRITISH PSYCHOLOGICAL SOCIETY (Industrial Section), at the Examination Rooms of the Royal College of Physicians, 8-11, Queen-square, Bloomsbury, W.C.

Wednesday, Feb. 25th.—6 P.M., Dr. H. M. Vernon: The Effect of Change in Hours of Work on Output.

HUNTERIAN SOCIETY, in the Hall of the Society of Apothecaries, Water-lane, Ludgate Hill, E.C.

Wednesday, Feb. 25th.—9 P.M., Presidential Address:—Dr. W. Langdon Brown: Hunter, Gaskell, and the Evolution of the Nervous System.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Thursday, Feb. 26th.—5 P.M., Milroy Lectures:—Dr. A. Castellani, C.M.G.: The Higher Fungi in Relation to Human Pathology. (Lecture I.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Monday, Feb. 23rd.—5 P.M., Arris and Gale Lectures:—Prof. G. E. Smith: The Evolution of the Cerebellum. II., The Mammalian Cerebellum.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—

Tuesday, Feb. 24th.—5 P.M., Lecture V.

A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—

Wednesday, Feb. 25th.—4.30 P.M., Lecture V.

A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.:—

Thursday, Feb. 26th.—4.30 P.M., Lecture VIII.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Monday, Feb. 23rd.—9.15 A.M., Lecture VII.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)

Wednesday.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 A.M., Lecture VIII., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Post-Graduate Course of Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, Feb. 27th.—9.15 P.M., Prof. Sir StClair Thomson: Syphilis of the Throat, Larynx, &c.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, Feb. 23rd.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Hamill: Heart Failure.

Thursday.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

Saturday.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Feb. 26th.—5 P.M., Lecture VII.:—Dr. W. E. C. Dickson: Some Pathological Aspects of Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, Feb. 24th.—2 P.M., Demonstration:—Dr. R. M. Murray: Cases of Pneumonia. 4.30 P.M., Lecture:—Dr. R. M. Murray: The Complications of Pneumonia.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Feb. 23rd.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Mr. Paton: Ophthalmoplegia.

Tuesday, Feb. 24th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.

Wednesday, Feb. 25th.—2 P.M., Mr. Sargent: Surgical Treatment of Spinal Caries. 3.30 P.M., Dr. James Taylor: Epilepsy.

Thursday, Feb. 26th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Farquhar Buzzard: Intracranial Tumours. II.

Friday, Feb. 27th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

Saturday, Feb. 28th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Saturday, Feb. 21st.—10 A.M, Dr. A. Saunders: Medical Diseases of Children.

Monday, Feb. 23rd.—5 P.M., Dr. Beddard: Practical Medicine. (Lecture III.)

Tuesday.—5 P.M., Mr. Page: Spinal Anæsthesia.

Wednesday.—5 P.M., Mr. Steadman: Dental Sepsis—Children, its Causes, Consequence, and Treatment.

Thursday.—5 P.M., Dr. G. Stewart: Treatment of Diseases of the Nervous System of Syphilitic Origin.

Friday.—5 P.M., Special Lecture:—Dr. J. S. Risien Russell: A Diagnosis of Affections of the Cerebellum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, Feb. 25th.—4.30 P.M., Dr. Beaumont: The Influence of War on Respiratory Disorders.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND, 11, Chandos-street, W.

Tuesday, Feb. 24th.—2.45 P.M., Paper:—Dr. R. H. Steen: Chronic Hallucinatory Psychosis.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, Feb. 23rd.—3.30 P.M., Dr. Nutt: X Ray Examination of Gullet and Stomach.

Tuesday.—4 P.M., Dr. Hay: Disorders of Motility of Eye.

Wednesday.—3.30 P.M., Dr. Wilkinson: Dysphagia.

Thursday.—3.30 P.M., Dr. Skinner: Eczema.

Friday.—4 P.M., Dr. Hay: Diseases of the Optic Nerve.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

Wednesday, Feb. 25th.—4.15 P.M., Mr. B. Whitehouse: Syphilis in Relation to Pregnancy.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Feb. 24th.—4.30 P.M., Lecture:—Dr. E. B. Leech: The Use of Pancreatic Preparations for Digestive Disorders.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, Feb. 26th.—4.30 P.M., Lecture:—Dr. Ward: Bronchial Affections of Childhood. (At Ancoats Hospital.)

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. R. J. Albery. Lond.; Dr. J. E. Adams, Lond.; Messrs. Allen and Hanburys, Lond.

B.—Dr. J. Blomfield, Lond.; Mr. H. A. Barker, Lond.; Dr. W. Langdon Brown, Lond.; Dr. G. Burnet, Lond.; Mr. H. Barwell, Lond.; Dr. R. G. Barlow, Liverpool; Dr. G. Blacker, Lond.; Dr. E. Bramwell, Edinburgh; Dr. H. Brown, Chislehurst; Dr. C. R. Box, Lond.; Dr. H. Barber, Derby; Bread and Food Reform League, Lond., Sec. of; Mr. N. H. M. Burke, Lond.; Capt. F. W. Brunker, R.A.M.C.(T.); Mr. J. Burns, Edinburgh; Mr. H. W. Bayly, Lond.; Sir J. Barr, Liverpool.

C.—Sir J. Colyer, Lond.; Dr. C. Coombs, Bristol; Dr. E. L. Collis, Cardiff; Dr. E. F. Cyriax, Lond.; Dr. H. P. Cholmeley, Forest Edge; Child Study Society, Lond.; Dr. R. C. Clarke, Clifton.

D.—Dr. G. H. Dart, Lond.; Denison House Public Assistance Committee, Lond., Sec. of; Dr. H. Drinkwater, Wrexham.

E.—Mr. W. H. Evans, Lond.; Dr. T. W. Eden, Lond.

F.—Mr. J. A. C. Forsyth, Lond.; Col. M. Flack; Federation of Medical and Allied Societies, Lond.; Dr. J. G. Forbes, Lond.

G.—Dr. W. E. Gye, Lond.; Mr. C. Goulden, Lond.; Dr. J. P. Gray, Exeter; Miss A. Gillman, Lond.

H.—Dr. M. L. Hine, Lond.; Dr. J. Haddon, Denholm; Prof. W. D. Halliburton, Lond.; Mr. W. Hereford, Geneva; Mr. F. G. Hallett, Lond.; Mr. W. W. Hardwicke, Lond.; Prof. W. Hall, Lond.; Prof. L. Hill, Lond.

I.—Incorporated Institute of Hygiene, Lond.; Illuminating Engineering Society, Lond.

J.—Dr. G. Jones, Lond.

K.—Dr. B. C. Kelly, Bow, Devon.

L.—Dr. F. J. Lidderdale, Folkestone; Leicester Public Medical Service, Hon. Sec. of; Mr. G. L. Lawson, St. Bees; Dr. T. P. Legg, Lond.; Dr. J. N. Leitch, Sutton; London Dermatological Society.

M.—Messrs. S. Maw, Son and Sons, Lond.; Dr. E. W. G. Masterman, Lond.; Dr. R. Maclean, Lincoln; Dr. T. H. Morse, Deal; Dr. J. B. Mennell, Lond., Dr. C. S. Myers, Lond.; Dr. R. W. MacKenna, Liverpool; Middlesex Hospital Medical School Lond., Dean of; Miss Marx, Lond.; Manor House Hospital, Lond.; Ministry of Health, Lond.; Dr. J. W. McNee, Lond.; Medical Society of London, President and Council of.

N.—National Provident Institution, Lond.; National Safety Council, Chicago; Dr. H. P. Nottage, Albuquerque.

O.—Rev. E. G. O'Donoghue, Lond.; Ontario, Registrar-General of.

P.—Major C. M. Plumtree, I.M.S.; Dr. G. L. K. Pringle, Harrogate; Prof. K. Pearson, Lond.; Capt. A. H. Priestley, R.A.M.C.; Mr. H. J. Paterson, Lond.

R.—Dr. R. G. Rows, Lond.; Royal Statistical Society, Lond.; Royal Institution of Great Britain, Lond.; R.C.S., M.D.; Royal Mail Steam Packet Co., Lond.; Miss B. F. Runge, Lond.; Royal College of Physicians, Lond.; Rontgen Society, Lond.; Royal College of Physicians, Edinburgh, President of.

S.—Mr. F. D. Saner, Lond.; Dr. T. W. Shore, Lond.; Dr. G. S. Strathy, Toronto; Prof. E. H. Starling, Lond.; Mr. E. G. Slesinger, Lond.; Dr. G. A. Stephens, Liverpool; Sir G. H. Savage, Lond.; Dr. J. S. B. Stopford, Manchester; Dr. H. Spencer, Lond.; School of Sanitary Instruction, Chicago; St. Mark's Hospital, Lond., Sec. of; Prof. G. E. Smith, Lond.; Society of Apothecaries of London, Clerk of; Prof. Comm. G. Sorge, Naples; Save the Children Fund, Lond.; Prof. C. F. M. Saint, Newcastle-on-Tyne; Mr. J. Sherren, Lond.

T.—Tuberculosis Society, Lond., Hon. Sec. of; Dr. H. A. Treadgold, Lond.; Dr. J. Taylor, Lond.; Mr. H. Townsend-Whitling, Market Harborough; Mr. J. Tennant, Lond.; Mr. I. Tewfik, Rochester; Dr. O. P. Turner, Hastings.

V.—Village Centres Council, Lond., Sec. of.

W.—Mr. L. E. Williams, Liverpool; World Trade Club, San Francisco; Mr. C. E. West, Lond.; Dr. H. Williamson, Lond.; Dr. J. Watt, Sutton; Dr. J. P. Walker, Ryde; Mr. H. W. Woodcock, Lond.; West London Hospital Post-Graduate College; Dr. F. J. Waldo, Lond.; Dr. R. T. Williamson, Manchester; Mr. A. R. Walker, Lond.; Prof. R. B. Wild, Manchester; Capt. E. J. Wyler, R.A.M.C., Hilsea.

Z.—Dr. T. Zangger, Zurich.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C.

Notes, Short Comments, and Answers to Correspondents.

THE ROYAL EDINBURGH ASYLUM AND THE UNIVERSITY CHAIR OF PSYCHIATRY.[1]

BY PROFESSOR GEORGE ROBERTSON,
M.D. EDIN., F.R.C.P. EDIN.,
PHYSICIAN-SUPERINTENDENT OF THE ROYAL ASYLUM, MORNINGSIDE.

THE idea of founding this chair was first brought up early in the nineteenth century by Sir Alexander Morison, but Professor Hope, the chemist, whose opinions carried great weight, was averse to the innovation. Sir Alexander Morison had cited as a precedent for his proposal the comparatively recent establishment of a Chair of Agriculture. Professor Hope replied that the parallel did not hold good. He quite approved, he said, of a Chair of Agriculture, but not one of ploughing, nor, for that matter, of pleurisy; and he evidently classed mental diseases in much the same category. He even expressed the fear, if the thin end of the wedge were thus inserted, that some dropsical old gentleman might leave a sum of money to endow a chair of dropsy or of liver disease, and this argument, which may seem puerile now, convinced his colleagues and blocked the proposal. It has been revived from time to time, but it took nearly a hundred years to get the principle accepted and the necessary action taken.

The managers of the Royal Asylum have now, at a critical period of development in our history, conferred a signal benefit on the University and the Medical School by providing the necessary fund to endow a Chair of Psychiatry. It has therefore occurred to me, in grateful recognition of their public-spirited action, that an appropriate subject for my inaugural address would be an account of the events that led up to the founding of the Royal Asylum. The story forms an interesting romance which it would be a pity to forget, and it also supplies us incidentally with psychological instruction.

The Founder of the Royal Edinburgh Asylum.

The founder of the Royal Edinburgh Asylum was Dr. Andrew Duncan, senior, President of the Royal College of Physicians. Dr. Andrew Duncan was one of the most useful citizens Edinburgh ever possessed. He was full of zeal for his profession, for works of medical benevolence, and for social well-doing generally. It is hard to believe that what he accomplished in his lifetime was the work of one man, and Lord Cockburn was probably in earnest when he wrote that he was the promoter and President of more clubs and societies than perhaps any man in the world. He was the founder of three useful and successful Royal corporations, the Royal Asylum, the Royal Public Dispensary, and the Royal Caledonian Horticultural Society. He also founded the Æsculapian Club, the Harveian Society, and the Medico-Chirurgical Society. He edited for 30 years the "Medical Commentaries" and the "Annals of Medicine," which still exist as the *Edinburgh Medical Journal*. He held two professorships at the University, he served two terms of office as President of the Royal College of Physicians, and he was first physician to the King in Scotland. He founded a sea-bathing club and a gymnastic club, and it is recorded that he even climbed to the top of Arthur's Seat every May-day morning till he was 83 years of age. It is not surprising that so remarkable a citizen should have received the honour of the freedom of the city. Not only do we know that Dr. Duncan was the founder of the Royal Asylum, but we also know how the idea of the need for providing a mental hospital for Edinburgh originated in his mind.

Robert Fergusson.

When a young man, 30 years old, he was called on to treat the poet, Robert Fergusson. Dr. Duncan found Fergusson in a state of furious insanity, living in the home of his mother, an elderly widow in straitened circumstances. Her feeble state and the situation of her house made it impossible to treat the patient or to secure his safety while he remained at home. After fruitless efforts to have him provided for in a more suitable place, he was removed to the City Bedlam. This was situated within the triangular block of buildings behind Teviot-place, and it probably stood exactly opposite to, and within a stone's-throw of, the main entrance of the new University buildings. In one of the cells in this bedlam of the Charity Workhouse the poet Fergusson was therefore confined. The floor of the cell consisted of stone flags, the only furniture was a bed of loose straw, and the opening admitting air and light to it was probably unglazed. After some months the symptoms of morbid elation or mania passed off and despondency or melancholia of a religious kind took their place, this being the typical course of events in the form of disorder known as "manio-depressive insanity." The patient grew thin, became exhausted, and finally died on Oct. 15th, 1774, about ten months after his admission. In the old minute-book recording the deaths the chilling record stands thus: "Mr. Fergusson, in the cels."

Robert Fergusson was a genius. He was one of the three finest poets in the vernacular that Scotland has ever produced. Henley writes: "There can be no question but in his death at four-and-twenty a great loss was inflicted on Scottish literature." In a state of mild mania or elation characterised by a rapid flow of uncontrolled ideas he must have been a supremely brilliant and fascinating, if erratic personality; and in his final phase of religious despondency or melancholia, a most pathetic one. It is therefore not surprising that the deplorable surroundings for treating the malady of one so highly gifted and sensitive made a deep impression on his young physician. He wrote to the Lord Provost: "It is impossible to conceive a more interesting object of charity than the man of genius, when a pauper lunatic." Nothing practical that we know of was done in connexion with this matter between 1774, when Fergusson died, and 1790 when Dr. Duncan was elected president of the Royal College of Physicians, and announced his scheme for providing a mental hospital for Edinburgh.

Awakening Humanity: John Howard.

During this interval of 16 years, the world was not standing still. Some of the most remarkable events in history were taking place, which altered for ever the mental outlook of mankind. A new day was dawning in which a more even sense of justice, a stronger instinct of freedom, and a truer realisation of the brotherhood of man were coming into being. The year after Fergusson died (1775), our American colonists fired the first shots in their struggle for independence, which "shook the world." The year before Dr. Duncan was elected president (1789), the mob of Paris stormed the Bastille, accomplishing one of the memorable events in the history of the world. At this time (1787) Wilberforce formed the Association for the Abolition of the Slave Trade. Not only to the negro in slavery, but to the white man in captivity was sympathy extended, for, by a curious circumstance, it was during this very period of 16 years, between 1774 and 1790, that John Howard, the prison reformer, laboured. When a young man, aged 29, he had been captured at sea, and made a prisoner of war in France. He thus knew from personal experience the horrors of prison life. In 1773 he was appointed sheriff of Bedfordshire, and it was part of his duties to inspect the prisons and prisoners within his jurisdiction. Their misery and neglected condition at once aroused his sympathy, for they recalled vivid recollections of his own painful experience 18 years previously, when a prisoner of war. Such was the volume of emotion thus aroused, that thereafter he devoted the remaining 16 years of his life to exploring the prison world of Europe and ameliorating the lot of the prisoner. This investigation is related to the care of the insane, not only because the insane were treated like prisoners in those days, but also because Howard found that prisons were overcrowded, owing to the presence of insane persons detained in prison because there was nowhere else to keep them in safety. Before the end of his life he had another reason for interesting himself in the care of the insane, for his only son became afflicted in mind and died insane.

It is well known that Howard's work "On the State of Prisons in Europe" attracted universal attention, but it is not so well known that his reports on hospitals and the care of the insane were also received with great respect. In proof of the influence exerted by him on the treatment of the insane stronger evidence cannot be advanced than this: that Esquirol, when describing the great reform which is the glory of his teacher, Pinel—namely the introduction of the humane system of treatment—frankly points out that Howard's work led up to it. Increased solicitude for the care of the insane was therefore the natural result of the history of the time. It is not possible to explain otherwise how movements for their amelioration should have been started simultaneously by persons acting quite independently in so many different parts of Europe—Andrew Duncan at Edinburgh in 1790; Joseph Paquin at the Chambery Asylum in Savoy in 1791; William Tuke at York in 1792; Philippe Pinel at the Bicêtre in Paris in 1793; and Vincenso Chiarugi at the San Bonifazio Asylum in Florence in the year 1793.

There were two other factors that probably determined Dr. Andrew Duncan to initiate his good work. The first in time and importance, I believe, to have been the visit of the poet Robert Burns to the city of Edinburgh in the winter of 1786–87. The second was the attention directed to the malady by the insanity of King George III. Burns had a great admiration for the work of the poet Fergusson, which served as a model for his own. Shortly after his arrival in Edinburgh he made inquiries regarding the burial place of Fergusson, who had been interred in a pauper's grave in the Cannongate Churchyard. Burns found the grave unmarked and neglected, and obtained permission from the Kirk session of the Cannongate to erect a tombstone to the poet's memory. It is possible that he obtained his information egarding the burial place from Fergusson's physician, whom we know to have been one of those who was keenly interested in him during his last illness. Duncan was also sufficiently interested in Burns to subscribe for a copy of the Edinburgh edition of his poems.

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[1] An abstract of an inaugural address delivered on Jan. 22nd, 1920.

It appears to be a not unreasonable surmise that the interest shown by Burns in the poet Fergusson attracted attention to him and was the means of reviving in Dr. Duncan's mind his melancholy end, and with it the absence of adequate means of treating mental disease in Edinburgh. This revival 12 or 13 years after of a deep impression made during youth, with the resulting emotional energy that such an occurrence sets free, is exactly comparable to what happened in the case of John Howard. As already stated, Howard's interest in prisons was awakened after a period of ormancy lasting some 17 or 18 years, since the time he himself had been a prisoner of war. These two instances illustrate that a concrete experience, especially if received in impressionable youth and accompanied by strong emotion, may be in after life the irresistible motive power of high ideals and of conduct. The other event that probably influenced Dr. Duncan was the insanity of King George III. There is no doubt that the attacks of insanity to which the King was subject, directed attention to this malady in Great Britain, which it would not otherwise have received.

The Foundation.

The opportunity for which Dr. Andrew Duncan, now professor of physiology in the University, had been waiting came at last when he was elected President of the Royal College of Physicians on Dec. 2nd, 1790. He lost no time in carrying into effect the project on which he had set his heart. On the day following his election to the post of President, in virtue of his office as representative of the College of Physicians on the board of managers, he revisited the City Charity Workhouse and inspected the cell of its Bedlam in which Fergusson had died 16 years before. He immediately brought the matter before his council, and referred to it at the first meeting of the College, held in February, 1791. A committee was appointed, which reported in May that the establishment of an asylum in the neighbourhood would be of the utmost advantage, and made proposals as to the question of funds and the appointment of trustees. In August the report was finally approved, and the President was instructed to approach the Lord Provost on the subject. On Feb. 7th, 1792, it was reported that all the gentlemen proposed as trustees had accepted nominations, and the College then subscribed a sum of £25 towards the scheme. Three weeks later, on the suggestion of the College of Physicians, circulars were issued by the Lord Provost and other trustees and distributed to the public, describing the objects of the proposal and requesting subscriptions. On this date, therefore, Feb. 26th, 1792, the whole scheme for providing an asylum and suitable treatment for the insane in Edinburgh was publicly launched. By a strange coincidence only six days later, March 3rd, 1792, William Tuke at the close of the quarterly meeting of the Society of Friends, held at York, proposed the establishment of a retired habitation for deranged members of the Society, afterwards to become so well known as "The Retreat."

Owing to a variety of causes, of which the Napoleonic wars and the disturbed state of the country were the most important, subscriptions did not come in freely for 14 years, in spite of the nest-egg provided by the Royal College of Physicians. This was not surprising, as during this period there was a complete interruption of charitable work all over the kingdom, as there was of charitable legislations as well. A sum of £2000 was, however, given towards the scheme on July 23rd, 1806, by the Crown (46 George III., c. 156) from funds obtained by the sale of the highland estates forfeited in the Rebellion of 1745, a most unexpected source from which to obtain money for such an object. This sum enabled the trustees to purchase a site for the new asylum in the adjacent village of Morningside, now absorbed by the city. Generous contributions also resulted from a new address to the public composed by the Very Rev. Dr. Baird, Principal of the University. The foundation-stone of the asylum was ultimately laid by Lord Provost Coulter on June 8th, 1809, and the first patient was admitted on July 19th, 1813.

By the establishment of a mental hospital in one of the suburbs of Edinburgh, the first requisite for clinical instruction in mental diseases was thus provided for. This was one of the objects anticipated by its founder, and held forth by him among the other claims which it had upon the liberality of the public. This object was still further emphasised by a medical committee over which Dr. David Maclagan, the father of the late Sir Douglas Maclagan, acted as convenor. In their report, dated Dec. 23rd, 1835, it is stated that under judicious regulations the institution may be run most usefully as a school of instruction in the observation and treatment of mental diseases. Thirteen months afterwards the managers resolved to erect an additional building for the reception of parochial patients, and this was opened in 1841. It is now known as the West House and it is here that clinical instruction has been given regularly since the year 1853.

The Chair of Psychiatry.

It is evident that the board of managers have always taken a serious view of their responsibility for the provision of facilities for clinical instruction. There is, in consequence of this attitude, no mental hospital where the tradition of teaching exists to a stronger extent than in the Royal Asylum at Morningside, nor any medical school that has been better served than that of Edinburgh. It is only in keeping with this high tradition and to further its objects that the board of managers, conceiving the time to be ripe, have finally thought it to be their duty to endow a Chair of Psychiatry in the University of Edinburgh.

MENTAL DEFECTS AND THEIR DIAGNOSIS.

IN the course of two lectures delivered under the auspices of the Central Association for the Care of the Mentally Defective at the Fabian Hall, Tothill-street, Westminster, London, S.W., on Jan. 20th and 27th, Dr. Letitia Fairfield dealt with the types and varieties of mental deficiency, with their differential diagnosis from blindness and deafness. She said that the stigmata of degeneration, such as a sharply incurved little finger, a marked epicanthus or a high palate, were frequently found in normal intelligent persons, but the occurrence of two or more of these signs commonly indicated mental defects. The difference between the normal and abnormal child did not lie only in the structure of the muscles and bones of the solid parts of the face, or in the pose and walk; much of the characteristic appearance of an individual depended on the control of the muscles by the mind, and it was here that a contrast was often manifest. After describing the typical appearance of the microcephalic and hydrocephalic, and other abnormal types, the lecturer passed on to the mental characteristics caused by endocrine deficiencies; and lastly to the puzzling condition caused by such defects in the senses leading to dullness, often mistaken for mental defects.

Differential diagnosis.—Certain abnormalities in a child might produce symptoms that would suggest lack of intelligence when the trouble was really a sense-deficiency of hearing or vision. The diagnosis was very important and should be made in the home if possible. In the days before school inspection these defects were common, but in recent years the lecturer had had to deal with only one case, that of a girl who was thought to be mentally deficient but who really was suffering from deafness. These cases could only be differentiated by keen observation. A baby in the cradle would not be likely to indicate lack of sight unless it was almost completely blind. Such complete blindness would seldom occur without an obvious defect in the eye or in the presence of nystagmus; this was a most important sign to watch for. A child might respond quickly to sound but take no notice of bright light; an idiotic child was frequently blind. When testing one sense the others should be excluded. The observing mother seldom made a mistake. When the child was able to walk it should be noted whether it stumbled, whether its interest was attracted by anything pretty, whether it held a bright object close to its face. Its inability to recognise things by feel was another test. The distinction between the deaf child and the defective was often very difficult, and was a common source of error both in teachers and doctors. A child very rarely knew that it was deaf, because it had no standard of hearing, and thus could not plead deafness in its own defence. More especially was there difficulty if the deafness was partial. A clever deaf child was much more likely to be taken for a mental deficient than a stupid one. A totally deaf or stupid child would lack speech, and this would at once arouse suspicion that the child was deaf. If the child was only partially deaf and at the same time clever it would learn to speak and to use its other senses to make up for the lack of hearing. Sometimes it would unconsciously learn lip-reading. In testing hearing care should be taken not to make signs, and a noise made behind the child's back, such as clapping hands, should be performed so far away that the patient would not feel any movement of air. In testing the child by the voice the forced whisper should be used, so as to avoid giving indications to the child by the pitch of the tester's voice. The child should stand sideways to the operator, at a distance of 20 feet, and have the ear on the far side blocked. The pronunciation of 66 and 99 were good tests, but sibilants, dentals, and labials should be used in turn. In adenoid cases deafness was often intermittent, and a set test was not always reliable. Idiotic and paralysed children were often completely deaf.

GRADE "A" MILK.

THE rules governing the sale of Grade "A" (Certified) Milk are to be subject to revision after March 14th next, and new licences will be issued only when the wholesale or retail distributor complies with conditions satisfying a representative of the Ministry of Health or of the Scottish Board of Health or of specially empowered local authorities. The herd from which the milk is obtained must contain no cow, or heifer in milk or in calf, or other bovine animal, kept in contact with the herd, which has not passed specified tuberculin tests. The additional conditions are that:—

1. The milk must be cooled and bottled immediately after production for delivery to the consumer in bottles which have previously been sterilised by steam on the premises where the milk is produced.
2. Every bottle must be covered with a suitable outer cap overlapping the lip of the bottle, and this cap must bear the name and address of the producer or of the farm where it is produced, the day of production, and the words "Grade A (Certified) Milk."
3. The milk on examination at any time before delivery to the consumer must not contain *B. coli* in one-tenth c.cm. (in each of two tubes) or more than 30,000 bacteria per c.cm.
4. The milk must not be delivered to the consumer as Grade "A" (Certified) Milk more than two days after the day of production.

COSTLY DRUGS IN GERMANY.

THE following returns taken from the *Economic Review* (Feb. 11th, 1920) are of interest in connexion with Germany's dependence upon external sources of certain drug supplies:—

> A report on the chemical market in 1919 states that few markets showed such chaotic conditions, owing to the impossibility of meeting the colossal world demand for chemicals and, especially, pharmaceutical articles.
>
> The abolition of the German war-time Acts in the territory occupied by the French has resulted in an almost unlimited trade in all kinds of medicines, which hardly contributes to improve the situation. Many of the new chemical companies, whose name is legion, show a regrettable lack of expert knowledge. A large number of metal works have established "chemical sections." The extraordinary increase in prices is shown by the following figures (in marks):—

	1914.	*1917.*	*Jan., 1919.*	*July, 1919.*	*Dec., 1919.*
Quinine, hydrochloride	44	113	137	500	1200
Chloroform	1·40	5·20	6	15	30
Silver nitrate	55	145	165	450	1050
Pot. bromide (1910)	2	3·10	3·75	15	60
Menthol recryst.	28	72	160	480	1150
Resorcine (1912)	6	15·50	50	—	390
Pot. iodide	26	32·50	127	—	450

> The report refers to chemical preparations for the supply of which Germany is dependent upon foreign countries. In the middle of 1919, for example, English borax at about Mk. 6 ousted the German article at Mk. 28 from the market, but owing to the unfavourable exchange the price rose to Mk. 12–Mk. 14 at the end of 1919. (*Frankf. Ztg.*, Jan., 23.e.)

The figures, while showing clearly an enormous advance in prices, do not convey the cost by weight of the drugs quoted. The quotations, however, are evidently for 100 g. It is notable that synthetics do not figure prominently in the list.

FEES OF OUR ANCESTORS.

To the Editor of THE LANCET.

SIR,—Those who had the pleasure of listening to Sir D'Arcy Power's address on the above subject, delivered before the Royal Society of Medicine and published in THE LANCET of Feb. 7th, wished that he had not limited himself to 20 minutes; he might have extended the period to one hour without exhausting either his own repertoire or the interest of his audience.

His observations concerned chiefly payments made by civilians to their doctors. May I add a few of those made by Royal personages?

When the Court physician was a cleric it was only natural that payment should, in part at all events, take the form of presentation to a "living," and the number of livings bestowed was generally a measure of the degree of favour in which the physician stood with his Sovereign. Thus Linacre held simultaneously or in quick succession one canonry, three prebendaries, and five rectories, and Dr. Chambre, who preceded Linacre as physician to Henry VIII., not only held several livings in this country, but also an archdeaconry in Ireland, from personal service in which he was exempted on account of his attendance at Court.

Payments to non-clerical physicians and surgeons make a curious recital at the present time. William Holme, for instance, surgeon to Edward III., received permission to "have, chase, and carry away" all manner of wild beasts infesting the King's forests; while to John Middleton, physician to Richard II., were granted all fines due to the King through the escape of prisoners from York Castle, a remuneration, therefore, which would depend upon the carelessness of the governor and the cleverness of the prisoners. William Bredwardyne, surgeon to Richard II., was appointed constable of Dryslwyn Castle, in South Wales, and William Hatclife, physician to Henry VI., was appointed "Keeper of the Water of the Fosse," for which he was paid 6*d.* a day. A convenient way in which an impecunious monarch discharged his obligation was by allowing his surgeon to mint his own money, subject, doubtless, to restrictions; while a gentleman, whose name I have forgotten, was granted a manor bordering upon the South Coast upon the condition that he should accompany the King whenever the latter went to sea and support the King's head during sea sickness.

I am, Sir, yours faithfully,

S. D. CLIPPINGDALE.

Holland Park-avenue, W., Feb. 14th, 1920.

INDIAN INFANT WELFARE EXHIBITION.

THE Infant Welfare Exhibition has decided to award medals and certificates of merit for exhibits offered in the following classes:—

Class 1.—For the best model of a dwelling-house showing hygienic compared with unhygienic conditions. The models may be of any size.

Class 2.—For the best exhibit shown by any business firm in the interest of maternity and infant welfare.

Class 3.—For the best exhibit illustrating welfare work being carried on among employees.

Class 4.—For the best model outfit such as could conveniently be supplied to midwives and dais for use at childbirth, to mothers for preparation for childbirth, to mothers for use in connexion with first-aid and home nursing.

Class 5.—For articles calculated to improve the conditions of infancy and childhood.

Class 6.—For the best exhibit of snapshot sketches or cartoons of a nature calculated to increase public interest in maternity and infant welfare work or to illustrate matters relating to hygiene.

Class 7.—For the best essay on fly destruction.

Class 8.—For the best device for fly destruction. This may be any type, mechanical, medicinal, &c. The attention of commercial firms is specially drawn to this offer.

In addition, medals are offered by associations and private individuals as follows:—

1. By the Victoria Memorial Scholarship Fund for a model lecture, "How to Conduct a Confinement in a Poor Indian House," suitable for various specified audiences.
2. By the Association of Medical Women in India for the best set of simple models to be used in connexion with the teaching of midwifery.
3. By the Association for the Provision of Health and Maternity Supervisors for the best colloquial of "Talks to Mothers."
4. By the Association of University Women in India (Delhi and Punjab Branch) for the best model plans of a house suited to Indian families with different incomes.
5. For the best essay on the "History and Practice of Ayurvedic Midwifery," to be written in Hindi.
6. For a lecture in simple style on "How to Improve the Conditions of Childbirth in India according to the Shastras," to be written in English or Bengali.
7. For a model lesson showing the best food calculated to improve the condition of childbirth in a poor Indian house where vegetarianism is followed.

The above medals will only be awarded if a certain standard of excellence is reached. The essays for these competitions may be written in any language except where otherwise stated, and are open to all classes of people.

Major, R.A.M.C.—We should not be safe in making such wholesale charges against medical men without being able to give our authority.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
Misshapen Noses and their Surgical Correction without Cicatrix. By J. Bourguet, M.D. Paris. Pp. 72 (60 plates). 3*s.*

CASSELL AND CO., LTD., London.
A Text-book of Gynæcological Surgery. By Comyns Berkeley M.C., M.D., and Victor Bonney, M.S., M.D. Second edition, Pp, 829. 42*s.*

DANIEL, C. W., London.
Arms and the Doctor. By H. Gervis, Captain R.A.M.C. (T.F.). Pp. 86. 2*s.* 6*d.*

SAUNDERS, W. B., AND CO., LTD., London.
The Health Officer. By Frank Overton, M.D., and Willard J. Denno, M.D., Medical Director of the Standard Oil Company. Pp. 512. 20*s.*
Nervous and Mental Diseases. By Archibald Church, M.D., and Frederick Peterson, M.D. Pp. 949. 9th ed., thoroughly revised. 30*s.*
Manual of Obstetrics. By Edward P. Davis, M.D. Pp. 478. 2nd ed., revised. 15*s.*
Principles and Practice of Physical Diagnosis. By John C. DaCosta, Jun., M.D. Pp. 602. 4th ed., thoroughly revised. 20*s.*

Lettsomian Lectures

ON

TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

Delivered before the Medical Society of London on Feb. 2nd and 16th, and March 1st, 1920,

By HERBERT R. SPENCER, M.D., B.S. Lond., F.R.C.P. Lond.,
OBSTETRIC PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL.

LECTURE II.*

Ovarian Tumour Complicating Pregnancy, Labour, and the Puerperium.

Table D gives short particulars of all the cases I have seen except two: of these the first was a hospital patient who, although advised both before and during pregnancy to have an ovarian tumour removed, refused and was delivered without difficulty; on the third day of the puerperium the tumour (containing 31 pints of fluid) burst spontaneously, causing the death of the patient as soon as she reached the hospital.[1] The other case, the wife of a physician, had an ovarian tumour as big as a lemon. As it caused no trouble she was advised to await the occurrence of pregnancy. She had been married five years without conceiving. She became pregnant in 1918 and was delivered easily of a living child, and, as the tumour causes no inconvenience, she does not wish it to be removed just yet. In Table D, the column "Result of labour to child" gives the result of the labour preceding the ovariotomy in the patients operated on after delivery and following the ovariotomy in the patients operated on during pregnancy, as shown in brackets in the column "Date of ovariotomy."

Before proceeding to consider the question of treatment, it may be well to analyse the columns of the table.

Age of the patient.—The oldest patient was 43 (Case 30), the youngest 20 (Case 21), the average age was 30.

Number of children.—Nine of the patients were nulliparæ at the time the ovarian tumour was present. Three of these had multilocular cysts, one had a "parovarian" and an ovarian cyst, three had dermoids, two had ovarian fibroids.

The 55 patients had had 150 children, an average of nearly three, before the tumours were removed. Nine patients had had five or more children; one having had nine, and three having had ten children.

Number of abortions. — Thirty-three abortions had occurred before the ovariotomy in 48 patients; in 7 of the cases there is no record as to abortion. In Cases 29, 33, 42, and 47 abortions took place before the last child, and in Case 43 15 months before I saw the case, whereas four children had been born 14, 11, 8, and 6 years ago. Excluding these 7 cases, we find that the remaining 48 cases had 125 children and 33 abortions. We may suppose, therefore, that the 7 cases would have had about two abortions; this would give 35 abortions for the 55 cases. The proportion of abortions to childbirth would thus be 35 to 150.

Number of abortions in 40 cases not operated on during pregnancy.—Thirty-two abortions occurred amongst 33 patients not operated on during pregnancy. In the remaining 7 cases there is no record of the number of abortions; but in none of the 7 cases did abortion occur in the pregnancy preceding the ovariotomy. In only five of the 33 patients did abortion occur in the pregnancy preceding the ovariotomy, and about one case (Case 28) there is some doubt, the notes not recording *when* the abortion occurred. This gives an abortion-rate of at most 5 in 40 cases. If Case 28 were included the abortion-rate would be 4 in 39 cases, or, if Case 28 did not actually abort in the pregnancy preceding the ovariotomy, the rate would be 4 in 40 cases. In 5 out of 6 cases in which both ovaries were affected abortion did not occur; in the sixth case (Case 30) it is doubtful.

Number of abortions in 15 cases operated on during pregnancy.—Four of the cases aborted. Case 19 had bilateral dermoids removed at the twelfth week; Case 40 bilateral fibroids removed at the fifth week of pregnancy. Case 43 had hæmorrhage before the operation at the thirteenth week, when a large multilocular cyst was removed; the patient passed a mole 27 days afterwards. Case 47 had an acute twist of the pedicle of a parovarian cyst with hæmorrhage into the broad ligament; the tumour was removed at the thirteenth week of pregnancy two hours after the twist occurred. In 10 of the 15 cases operated on the pregnancy continued and living children were born, one dying shortly after birth. As three of the patients were operated on at term, when the question of abortion does not arise, the true abortion-rate for patients operated on before the child is viable is in this series 4 out of 12 cases.

Nature and Condition of the Tumours.

All the tumours were benign.

Cyst-adenomatous tumours were found in 33 cases; of these 22 were multilocular (in 2 cases papillomatous) and 11 unilocular; some of the latter may originally have been multilocular. The cyst-adenomatous tumours were mostly of large size; a few were small. The three ruptured tumours (Cases 32, 39, and 54) were multilocular cysts of large size. The two papillomatous tumours (Cases 13, 49) were also multilocular. Case 36 was complicated with hydrosalpinx and Case 28 with pyosalpinx and ovarian abscess.

Dermoid tumours were found in 15 cases. They were mostly small, not more than 10 to 12 cm. in their greatest diameter, the exceptions being Case 4, which contained 3 pints of pus, Case 42 (as big as an adult head), Case 53, which measured 16 cm. in its longest diameter, and Case 44, which was as big as the pregnant uterus at the sixth month, and contained pill-like balls of fat. In two of the cases the tumours were removed on both sides and in Case 38 a dermoid had been removed from the opposite side 13 years previously. Thus one-fifth of the dermoids were bilateral.

Ovarian fibroids were found in three cases: in Case 45 the tumour was small and contained pus; in Case 37 it was calcified, weighed 1 lb. 8 oz., blocked the pelvis, and was mistaken for a uterine fibroid before the operation. It was removed immediately after Cæsarean section. In Case 40 the tumours were bilateral, the right tumour weighed 3 lb. 8 oz., and was removed with the rest of the ovary; the left, an inch in diameter, was excised and the remains of the ovary stitched up. The patient had a living child next year (see "Proc. Roy. Soc. Med.," Obs. and Gyn. Section, Vol. II., p. 231).

"*Parovarian*" *tumours* were found in 6 cases. All except Case 2, which contained 10 pints, were of small size. In Case 51 a sub-fimbrial cyst on the left side was associated with an ovarian cyst on the right. In Case 48 the cyst was complicated by an inguinal hernia, operated on through the abdominal incision. In only 1 case (the only case in which the pedicle was twisted) was the corresponding ovary removed.

Torsion of the pedicle occurred in 18 cases—12 times in cyst-adenomatous tumours, five times in dermoid tumours, and once in "parovarian" tumours.

Rupture of the tumour occurred in 3 cases: Case 32 was ruptured, probably at labour, and removed a month later; Case 39 had been tapped at a lying-in hospital to relieve pressure; the tumour was removed during labour; Case 54 was admitted during labour with much free fluid in the abdomen. The diagnosis was made of ruptured ovarian cyst; it was removed 12 hours after labour and was found to be ruptured, but held 2 gallons of bloody fluid, some of which had escaped into the peritoneum. All these tumours were very large multilocular cysts. The largest ruptured ovarian tumour I have met with contained 31 pints of fluid. It burst on the third day after an easy labour. The patient had been advised, both before and during pregnancy, to have the tumour removed, but refused. She had been progressing favourably, but became collapsed when the cyst ruptured and was removed in an ambulance to hospital, but died of syncope immediately after her admission.[2] The wall of the cyst was very thin and looked as if it had been stretched.

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* Lecture I. was published in The Lancet of Feb. 21st, p. 411.

[1] Obstet. Soc Trans., vol. xliii., p. 224.

Suppuration of the tumour was met with in 8 cases. In all cases the suppuration occurred after delivery. In Case 1 the tumour contained 2 gallons of fœtid pus, and the patient was very emaciated and feverish. In Case 4 the patient had been delivered with forceps (the child dying on the third day) and the tumour had been tapped twice, 10 pints of pus being evacuated. In Case 7 the pedicle was twisted. In Case 8 the tumour contained 15 pints of pus. In Case 12 the child was delivered (dead) with forceps; the tumour contained 26 oz. of pus. In Case 26 the tumour was small and did not become evident till the uterus had involuted. Case 28 was complicated, with an ovarian abscess and pyosalpinx on the other side. Case 45 was a small fibroid.

Six of the suppurating tumours were cyst-adenomatous, one was a fibroid, one (Case 4) was a dermoid; the infection in this case probably was caused by the tapping. The supposed proneness of dermoids to suppurate is due to an error of observation; the liquid fat at the temperature of the body looks very like pus to the naked eye. Examination with the microscope shows its nature. The fact is that dermoids very rarely suppurate. They are, no doubt, more prone to it as a result of labour, owing to the risk of injury when they are in the pelvis. Out of 59 dermoid tumours removed I have only met with suppuration in two cases besides the case mentioned above, and in one of them the tumour communicated with the sigmoid flexure of the colon; the other was published in the Medical Society's Transactions, Vol. XVII.

SEAT AND POSITION OF THE TUMOUR.

The tumour was situated in the right ovary in 23 cases, in the left ovary in 18 cases, in both ovaries in 8 cases, in the right parovarium in 4 cases, in the left parovarium in 1 case, in the left parovarium and in the right ovary in 1 case.

Incarceration of the tumour in the pelvis were met with in 5 cases[3] (Cases 21, 23, 24, 25, 37). In Case 21, who a year previously had had a dead child delivered by forceps, the tumour could not be pushed up during labour. Ovariotomy was performed, the uterus being withdrawn from the abdomen in order to permit extraction and removal of the tumour; the forceps was then applied while the uterus was outside the abdomen, and a living girl delivered who was quite well 21 years later; the mother had had nine children since the ovariotomy, and was also in good health. In Case 23 the tumour was pushed up during labour, the child delivered alive by forceps, and the tumour removed seven months later. The tumour had been present at the first labour and the first two children had been stillborn. In Case 24 the tumour, incarcerated in the pelvis at 4½ months, was pushed up and a living child was born normally at term; the tumour was removed a fortnight after delivery. After the tumour had been pushed up it occupied a position in the loin, and at term closely resembled a hydronephrosis, and might easily have been overlooked. A photograph taken at term shows little evidence of the tumour, and emphasises the importance of examination of the lumbar regions during pregnancy. In Case 25 the tumour was removed at the eighteenth week of pregnancy, and a living child was born at term. In Case 37, in which the tumour was mistaken for a *uterine* fibroid, Cæsarean section was performed, with a successful result to the mother and child.

These five cases, of which four were dermoids, show the value of treating the obstructing tumour either by pushing it up out of the pelvis or removing it by operation. The danger of delivering the child while an ovarian tumour is in the pelvis is illustrated by a specimen exhibited before the Obstetrical Society in 1898, which was ruptured during version after an attempt at delivery by forceps, with a fatal result to the mother.[4] During the course of labour the reposition of the tumour is facilitated by putting the patient in the Trendelenburg position under chloroform anæsthesia (Bossi),[5] a procedure which should always be tried before resorting to abdominal section.

If it is found to be impossible to push up the tumour, the uterus should be withdrawn from the abdomen through a 6-inch incision, which is quite long enough if the uterus be brought out cornerwise. If the child be in good condition the tumours may be removed, and the child delivered by forceps; but, if the child's heart-sounds are slowed or weak, the child should be delivered as soon as the tumour has been pulled out of the pelvis and before it is removed; thus the child will be spared some minutes of anæsthesia. It is of great importance that the cervical canal should be dilated before operation for the removal of the tumour, otherwise it may be necessary, after removing the tumour, to close the abdomen, which is done with difficulty, owing to the tension of the abdominal wall. In delivering the child at the end of the first stage it is not necessary to replace the uterus in the abdomen; the forceps may be applied (if possible, by a second operator), while the uterus lies on the abdominal wall (Case 21). If the cervical canal is not dilated the tumour should be pushed up with the patient in the Trendelenburg position, and the tumour removed at a later stage of labour or after delivery.

ADHESIONS OF THE TUMOUR.

Adhesions were found in 26 cases. The adhesions were all around the tumour in 4, to the abdominal wall in 14, to the omentum in 13, to intestine in 7, to the pelvis in 5, to the broad ligament in 4, to the uterus in 3, to the bladder in 2 cases. All the suppurating cases were adherent. Six of the 18 tumours with twisted pedicle had adhesions. Case 10 had a large cyst (8½ pints); Case 16 had been tapped; Case 21 had been delivered of a dead child, and the tumour was probably bruised. Cases 27 and 30 also had large cysts, while in Case 31 the tumour was as big as a coconut. In Cases 32 and 39 the cyst was ruptured. Case 44 had a large dermoid. Dermoid tumours, with pedicles not twisted, were free from adhesions except in two cases (21, 44).

GROWTH OF THE TUMOUR DURING PREGNANCY OR PUERPERIUM.

There does not appear to be any evidence in these cases of specially rapid growth of the tumour during pregnancy. Fifteen of the tumours were dermoids, which usually grow slowly and do not attain a size which enables the growth to be easily observed, at least by the patient. In Case 19 the left-side dermoid grew in three months from the (estimated) size of a hen's egg to the size of 8·5 × 7·5 × 6 cm.; in Case 53, the dermoid tumour at the third month of pregnancy of the size of a hen's egg measured 16 × 10 × 8·7 cm. nine months later. It must be remembered that the growth of ovarian tumours, apart from pregnancy, is often rapid. In Case 54 the growth was sudden and rapid, and the cyst ruptured during labour; it contained 2 gallons of bloody fluid, and was removed 12 hours after delivery. In Case 39 the tumour grew so fast that it had been tapped in a lying-in hospital to relieve pressure. These cases of rapid growth are, however, exceptional, and, on the whole, it appears that pregnancy exercises no special influence in increasing the rate of growth, the evidence pointing usually in the opposite direction.

In the puerperium there seems to be a greater tendency to a rapid growth. Case 7 is especially interesting from the fact that the tumour *diminished* greatly during ten weeks' observation in the hospital; the patient was also suffering from pleural effusion of tuberculous origin. A large suppurating ovarian cyst, extending high up into the abdomen, gradually got smaller, until, at the time of its removal, it was of the size of a fist. At the operation adhesions to the omentum, abdominal wall, and intestines were found to encapsule the tumour, and no doubt the vessels in these adhesions had absorbed some of the fluid in the cyst, thus leading to the remarkable reduction in size. The patient recovered well from the operation, and also eventually from the pulmonary phthisis; she was examined by me and found to be in fairly good health 27 years later.

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[2] Ibid.

[3] The first 4 cases have been published in Obstet. Soc. Trans., vol. xl., pp. 14, 22, 259, 329, the fifth in Proc. Roy. Soc. Med., Obstet. and Gyn. Section, vol. ii., p. 232.

[4] Obstet. Soc. Trans., vol. xl., p. 331.

[5] La Gynécologie, 1900.

RESULT OF THE OVARIOTOMIES.

Fifty-five ovariotomies were performed, of which one patient died (Case 14); the tumour was a dermoid. The patient had been delivered eight months before the operation, and had noticed abdominal pain five months after the confinement. There were no adhesions. The pedicle was not twisted at the time of the operation, but the Fallopian tube was almost divided, possibly as the result of a twist which had become undone. After the operation intestinal obstruction was caused by the adhesion of a coil of small intestine to the stump of the ovariotomy pedicle. The abdomen was opened and the coil separated, but the patient succumbed.

Result of the 15 ovariotomies performed during pregnancy.—Twelve of the cases were operated on in the first half of pregnancy—viz., at the 14th, 11th, 11th, 12th, 18th, 15th, 18th, 5th, 10th, 13th, 13th, 11th week. Cases 21[6] and 39[7] were operated on during labour; Case 37[8] immediately after Cæsarean section at term. In Cases 15 and 18 labour was induced on account of contracted pelvis. All the mothers recovered. The children (in Case 3 twins) were born alive in 11 cases, but in Case 33 the child died soon after birth; four patients aborted; thus, in 5 out of 15 cases the child was lost.

Result in four other cases seen during pregnancy, operated on after delivery.—Case 2 was seen in labour; a unilocular cyst containing 10 pints was present. The patient was delivered with forceps and made a good recovery; the tumour was removed eight months later. In Case 23 the tumour was incarcerated in the pelvis during labour, the cord prolapsed, the fœtal pulse-rate was 30; the tumour was pushed up out of the pelvis, and the child delivered alive with forceps. The tumour was removed eight months later.[9] In Case 24 the tumour was incarcerated in the pelvis and was pushed up into the abdomen at four and a half months; during the second half of the pregnancy the tumour caused no trouble. A living child was born at term and the tumour was removed 15 days later.[10] Of Case 54 the particulars have been given under the heading "Rupture of the Tumour." In these 4 cases the mothers recovered and the children survived. Thus, of the 19 cases seen by the author during pregnancy all the mothers recovered; and in 15 the children were born alive and in 14 survived.

Result of the pregnancies in the 40 cases not operated on during pregnancy.—All the mothers recovered from the labour or abortion. In 29 cases (out of 37 in which the fate of the child is given) the child was born alive; in 4 cases the child died as a result of difficult delivery by forceps or version (Cases 4, 9, 12, 50). In 4 (possibly in 5) out of the 40 cases abortion occurred (Cases 20, 36, 45, 51). The mortality rate for the children is 8 out of 37.

THE OVARIOTOMY.

The ovariotomy incision was made in or near the middle line, usually through the inner edge of the left rectus muscle. In Cases 46 and 51 the transverse Pfannenstiel incision was made: this incision lessens the exposure of the intestine and the risk of hernia subsequently, but may entail more manipulation; it is only exceptionally suitable for cases operated on during pregnancy. Silk was used exclusively for ligatures and buried sutures. Drainage was employed in three cases (Cases 10, 26, 30). The pedicle was tied with interlocking silk ligatures and stitched over with fine silk. In the later cases isolated ligatures were also placed on the ovarian artery, as first practised by Burd in 1846.[11] The advisability of this practice is shown by Laroyenne's case,[12] in which a patient died in the second month of pregnancy from hæmorrhage from slipping of the ordinary ligature applied at an ovariotomy three months previously; at the autopsy the two ends of the artery were found gaping, the growing uterus having displaced the ligature by stretching the broad ligament. Fehling[13] also lost a patient from the same cause: the lower pains, which began on the day following an abdominal ovariotomy near term, after two hours caused the ligature to slip and led to intraperitoneal hæmorrhage, for which the abdomen was opened and the pedicle again tied, but too late to save the patient.

ÆTIOLOGY.

The question of the influence of pregnancy in causing malignant changes in ovarian tumours has been discussed by Sir John Williams in his Cavendish Lecture. He showed that there was no evidence of such influence. In support of this opinion is the fact that malignant ovarian tumours are rarely found in pregnancy; in my 55 cases there was not an instance, whereas, apart from pregnancy, malignancy is met with in more than 20 per cent. of ovarian tumours. It is noteworthy that in advanced age, in women over 70 years of age, malignant ovarian tumours are also rare. The cause of this rarity cannot at present be stated.

Sir John Williams also discussed the influence of pregnancy and sterility in the causation of ovarian tumours, and came to the conclusion that sterility favours their production. The question is admittedly difficult to decide from consideration of the material available. In comparing Spencer Wells's figures of ovariotomy with the figures of the 1891 Census Report, Sir John Williams assumes that the married women were mothers and the single not mothers, while pointing out that the assumption may not be quite accurate. As married women who are childless are much commoner than single women who are mothers, I think his conclusion as to the effect of sterility in causing ovarian tumours may not be justified.

The only evidence I can offer on this interesting subject is too small to be of much value. Of 8 cases of ovariotomy which I have performed on women over 70 years of age, 7 were married and had been pregnant, and 1 was a virgin. The Registrar-General's Report for 1891 shows the proportion of married to single, in those over 65, to be about 89 to 11, and, if we allow one childless marriage in ten, the proportion of pregnant women to sterile would correspond so closely with the proportion in my cases as to suggest that sterility has not the influence which Sir John Williams's statistical investigations of Spencer Wells's cases would seem to show. But I think the question cannot be answered until we know the frequency of ovarian tumours in large numbers of virgins.

SYMPTOMS.

Many patients go through pregnancy without any symptoms arising from the presence of an ovarian tumour if it is small and does not block the pelvis or become twisted or inflamed. The only way in which such tumours can be diagnosed is by routine examination of the abdomen and pelvis during pregnancy, which ought to be carried out in every case. In advanced pregnancy it is important to examine the lumbar regions, as small tumours may easily escape notice or may be mistaken for renal tumours.

Tumours which are large give rise to feelings of weight and pressure. When the tumour becomes inflamed or strangulated by twisting of its pedicle the

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[6] Obstet. Soc. Trans., vol. xl., p. 14.

[7] Obstet. Soc. Trans., vol. xlviii., p. 37.

[8] Proc. Roy. Soc. Med., Obstet. and Gyn. Section, vol. ii., p. 232.

[9] Obstet. Soc. Trans., vol. xl., p. 22.

[10] Obstet. Soc. Trans., vol. xl., p. 259.

[11] Med. Chir. Trans., 1847, vol. xxx., p. 98.

[12] Congrès périod, internat. de gynéc. et d'obstet, Genève (1896), 1897, ii., p. 125.

[13] Quoted by Criwitz, "Geburtshindernis durch Ovarialtumoren," Inaug. Diss., 1902.

TABLE D.—*Ovarian Tumours Complicating Pregnancy, Labour, and the Puerperium—Table of Ovariotomies.*

Case.	Initial.	Age.	Children.	Abortion.	Time of discovery of tumour.	Seat of tumour.	Nature of tumour.	Result of labour to		Growth of tumour during pregnancy or puerperium.	Date of ovariotomy.	Adhesions.	Result.
								Mother.	Child.				
1	C.	32	1	0	By pt. [illegible] yr. ago; by dr. Aug., 1891.	l. o.	sup. m. c. (2 gal. pus).	R.	(?) L.	Slow before, marked after, delivery.	12/x/1891 lab./2/vii/91	All round tum.	R
2	J.	26	1	0	By pt. 2 yr. ago; by dr. 1 yr. ago; by me during lab.	l. p.	u. c. (10 pt.).	R.	L.; f.	Slow before, stationary after, delivery.	30/x/1891 lab./28/viii/91	None.	R
	H.	27	3	0	By dr. 1 mth. before op.	r. o.	m. c. (6 pt.); p. t.	R.	2 L.; v.	Probably slow.	16/ii/1892 (14 wk. preg.)	Abd. wall and om.	R
	B.	41	2	0	During preg. Tapped twice 3 wk. before adm. (10 pt. of pus).	r. o.	sup. d. (3 pt. pus); p.t.	R.	D.; f.	Steady increase after lab.	10/iii/1892 lab. 24/vi/91.	Universal.	R
5	P.	35	6	0	10 days after lab.	r. o.	m. c. size of uterus at term; p. t.	R.	(?) L.	Grew no larger but harder.	27/iii/1892 lab. 15/xii/91	Abd. wall, om., and intestine.	R
6	C.	31	1	0	After lab., 21 mth. before op.	r. & l. o.	l. m. c. size of 7 mth. uterus; small r. c.	R.	L.; f.	Very slight after lab.	19/iv/1892 lab. 28/xii/91	None.	R
7	T.	39	10 L.	5	10 days after lab.	r. o.	sup. m. c. size of fist; p. t.	R.	L.; v.	*Diminished* greatly during 10 wk. before op.	4/vi/1892	Intestine, om., and abd. wall.	R
8	J.	23	1	0	10 days after lab., 6 wk. ago.	r. o.	sup. c. (15 pt.).	R.	L.	Not known.	31/i/1893	Abd. wall and om.	R
9	H.	26	2	0	Shortly after lab.	r. & l. o.	d: r., size of walnut; l., size of swan's egg.	R.	D.	No increase noticed.	15/iv/1893 lab. 25/iii/92	None.	R
10	N.	36	4	5	2 yr. before.	r. o.	c. (8½ pt.) enucleated from broad lig.	R.	L.; b.	Slow before, rather rapid after, lab.	9/ix/1893 lab. 3/v/93	Abd. wall and pelvis.	R
11	H.	41	5	1	Sept., 1892, before preg.	r. o.	m. c. (6 pt. 4 oz. bloody fluid); p. t.	R.	L.	No increase before, rapid 14 days after delivery.	3/ii/1894 lab. vi/93	Om.	R
12	H.	28	1	0	Just after lab., 3 mth. before op.	r. & l. o.	sup. c. (26 oz. fœtid pus on r. side; l. c. not sup.	R.	D.; f.	No increase since delivery.	29/xii/1894	Abd. wall.	R
13	S.	30	4	0	After lab. noticed swelling, tumour 1 mth. before adm.	r. o.	m. c. (11 pt. 6 oz.); papilloma inside.	R.	L.	Slow increase after lab.	21/v/1895 lab. xii/92	None.	R
14	G.	35	6	1	Lab. at 8 mth. pain after 5 mth.	r. o	d. 11 × 10 × 7 cm.; p. t., but rectified.	R.	L.; v.	Probably stationary.	29/vi/1895	None.	D
15	H.	28	0	0	3 wk. before adm., during preg. (contr. pelvis).	l. o.	m. c., size of uterus at 5 mth; p. t.	R.	L.; v.; f.	Not known; labour induced.	23/x/1895 (11 wk. preg.)	Intestine, om., and abd. wall.	R
16	A.	27	0	0	In 3rd mth. of preg.; tapped by dr. 14 days after lab., 10 pt. rmvd.	r. o.	m. c., size of adult head, strong adhesions about puncture.	R.	L.; v.	Gradual throughout.	18/i/1896 lab. 10/viii/95	To abd. wall and om.	R
17	G.	29	3	0	Swelling noticed after lab.; inflam. 3 mth. later.	r. & l. o.	r. m. c., size of uterus at term; l. size of adult head; p. t.	R.	L.; v.	Gradual after labour.	2/iii/1896 lab. 28/v/95	None.	R
18	S.	30	7	0	During preg. (contr. pelvis).	r. o.	u. c., size of tangerine.	R.	L.; v.	No growth observed; labour induced.	20/vi/1896 (11 wk. preg.)	None.	R
19	W.	30	0	0	By me before preg. (contr. pelvis).	r. & l. o.	d.: r., 10·5 × 7·5 × 6 cm.; l., 8·5 × 7·5 × 6 cm.	R.	A.	l., size of hen's egg, 3 mth. before.	12/vii/1896 (12 wk. preg.)	None.	R
20	P.	26	2	2	Soon after A. (May 21st, 1896).	r. o.	d., size of double fist.	R.	A.	—	7/xii/1896	None.	R
21	G.	20	1 D.	0	After lab. (June 1st, 1896); by me during this lab.	r. o.	d., 11 × 10 × 9 cm.	R.	L.; v.	Probably none.	10/vii/1897 (during lab.)	Slight, to l. side of retro-uter. pouch.	R
22	G.	35	4	—	6 wk. after lab.	r. o.	m. c.; p. t.	R.	L.	—	10/xi/1897	None.	R
23	D.	32	2 D. 1 L.	—	By me during lab.; tum. incarcerated; f. Tum. pres. at first lab.	l. o.	d., 10 × 8·5 × 7 cm.; p. t.	R.	L.	None.	9/xii/1897 lab. 17/v/97	To rectum and post. pelvic wall.	R
24	M.	30	9	0	By me during preg., in pelvis; pushed up at 4½ mth.	l. o.	d., 12 × 9 × 6 cm., p. t.	R.	L.	None.	21/iii/1898 lab. 6/iii/98	None.	R
25	U.	22	2 L.	0	At last lab., 16 mth. before.	r. o.	d., 9 × 7·5 × 5 cm.	R.	L.	None, or very slow.	30/v/1898 (18 wk. preg.) lab. 29/x/98	None.	R
26	L.	23	1 L.	0	By me 3 wk. after deliv.	l. o.	sup. o. c., size of duck's egg.	R.	L.	Cont. fever till op.	7/xi/1899 lab. 6/viii/99	Uterus, om., intestine, broad lig., pelvic wall.	R
27	O.	39	10	—	Just after lab., prob. existed long before.	l. o.	c. (10¼ in. above pubes).	R.	—	—	5/iv/1900 lab./xii/99	To om.	R
28	W.	27	2	1	Pain since first child (?) 2 yr. ago.	l. o.	l. sup. c.; r. o. abscess, pyosalpinx.	R.	(?) L.	—	5/vi/1900	Uterus, pelvis, and broad lig.	R
29	T.	22	1 L. 2 D.	2	1 mth. after lab. peritonitis; op.	l. o.	d. size of emu's egg; p. t.	R.	L.	Probably none.	29/vii/1900	To all parts around.	R
30	B.	43	2	1	(?) June, 1895, after lab.; patient chronic alcoholic.	r. & l. o.	Large l. m. c.; cystic r. o.	R.	—	—	17/xi/1900	To abd. wall and broad lig.	R
31	R.	23	1	—	2 or 3 mth. before op.	l. o.	m. c., size of coconut.	R.	(?) L.	—	29/i/1901	Abd. wall and broad lig.	R
32	A.	32	3	0	Probably before 2nd preg.; during 3rd preg. (normal deliv.).	r. o.	Ruptured m. c.	R.	L.	Rather rapid increase during last pregnancy.	4/iii/1902	Abd. wall and om.	R
33	F.	30	4	1	Early in this preg., but pain thrice during the last yr.	l. o.	o. c.; p. t.	R.	L.; d.; f.	None.	23/x/1902 (15 wk. preg.) lab. 24/iv/03	To om., blad., and intestine.	R
34	L.	31	2 L.	0	At first lab. 4½ yr. before.	l. o.	Large m. c. (over 22 pt.).	R.	L.	—	3/xii/1902 lab. 28/x/02	None.	R
35	K.	32	4 L.	1	Six wk. after lab. (midwife); tum. present during preg.	l. o.	m. c., size of coconut; p. t.	R.	L.	—	14/ii/1903 lab. 13/viii/02	To all parts around.	R
36	T.	25	2	4	After abortion.	r. o.	m. c. (7·5 × 6 × 5 cm.), with hydrosalpinx.	R.	A.	Probably none.	7/vi/1903	None.	R
37	G.	38	0	0	Before preg.; diag. as uterine fibroid.	l. o.	Calcified o. fibroid (13·5 × 12 × 9 cm.), 1 lb. 8 oz., incarcerated.	R.	L.	None.	28/xi/1903 (after Cæsarean section)	None.	R

TABLE D.—*Ovarian Tumours Complicating Pregnancy, Labour, and the Puerperium—Table of Ovariotomies.—(Continued).*

Case.	Initial.	Age.	Children.	Abortion.	Time of discovery of tumour.	Seat of tumour.	Nature of tumour.	Result of labour to		Growth of tumour during pregnancy or puerperium.	Date of ovariotomy.	Adhesions.	Result.
								Mother.	Child.				
38	G.	24	0	0	Early in present preg.	l. o.	d. (10 × 9 × 7 cm.), 10½ oz.; r. o. d. rmvd. 13 yr. before.	R.	L.	None.	13/vii/1905 (18 wk. preg.) lab. 13/xii/05	None.	R
39	H.	24	0	0	During preg. at a hospital (tapped!): during lab. at U. C. Hosp.	l. o.	m. c. (14 pt.), ruptured.	R.	L.	Filled up rapidly after tapping.	10/viii/1905 (during lab.)	Om. and abd. wall.	R
40	D.	26	0	0	Early in this preg.	r. & l. o.	Bilat. o. fibroids r. 3 lb. 8 oz. (18 × 15 × 11 cm.) L. (2·5 × 2·25 × 2 cm.), enucleated.	R.	A.	Probably none.	17/iii/1906 (5 wk. preg.)	None.	R
41	C.	21	0	0	Early in this preg.	r. o.	d. (9 × 6 × 4·5 cm.).	R.	L.	None.	10/iii/1908 (10 wk. preg.) lab. 7/viii/08	None.	R
42	S.	37	3	1	Since last preg. 7 yr. ago.	r. &. l. o.	l. m. d. size of adult head, p. t.; r. o. simple c. size of hen's egg.	R.	—	Slow increase in size during 7 years.	14/xi/1908	None.	R
43	W.	36	4	1	During this preg. uterus retroverted and prolapsed, hæm.	r. o.	r. m. c. filling abd.	R.	A.	Apparently rapid increase during this pregnancy.	10/vi/1909 (13 wk. preg.)	None.	R
44	S.	42	10	2	At last lab.	l. o.	d. o. d., size of 6 mth. uterus; part ovary left.	R.	L.	Rather rapid increase lately.	30/iv/1910	To om. all over cyst.	R
45	B.	29	1	1	After A. at 10th wk.; 7 wk. before op.	r. o.	r. o. fibroid (4·5 × 3·2 × 2·5 cm.), covered with lymph sup.	R.	A.	Not noticed.	9/viii/1910	None.	R
6	K.	25	3	—	On Nov. 20th, 1910.	r. p.	r. p. c. (9 × 8·7 × 6·2 cm.), excised; neither o. rmvd.	R.	(?) L.	—	4/ii/1911 lab., 23/x/10	None.	R
7	J.	35	1	1	At 13th wk. of this preg.	r. p.	r. p. c., size of emu's egg, full of blood; p. t.	R.	A.	Not noticed; op. 2 hr. after p. t.; blood in broad lig.; r. o. rmvd.	26/iii/1911 (13th wk. preg.)	None.	R
8	L.	30	3	0	4 mth. after diff. occ.-post. delivery, prob. pres. then.	r. p.	r. p. c. (6·8 × 5·6 × 5 cm.); inguinal hernia; perineorrhaphy. Neither o. rmvd.	R.	L., 9¾ lb.	—	1/vi/1912 lab., 31/xii/11	None.	R
9	R.	22	1	0	During preg.; pt. constipated 1 wk.; T. 99·6, P. 140, before op.	r. o.	Large papillomatous o. c. 2 ins. above umb.; p. t.	R.	L., 8¾ lb.	—	31/x/1912 (11 wk. preg.) lab., 8/v/13	To abd. wall and om.	R
0	C.	29	3	—	After lab., April, 1913, tum. in pelvis; f.; version; dead child.	r. p.	r. bilocular p. c., size of double fist, enucleated; neither o. rmvd.	R.	D.	2 yr. before 11 lb. child delivered, no f.	19/vi/1913	None.	R
1	W.	36	0	1	At time of A. 1 mth. before op.	l. p., r. o.	l. sub-fimbrial c., size of hen's egg; r. o. c., size of small lemon, p. t.; l. o. not rmvd.	R.	A.	—	16/x/1913	None.	R
2	S.	24	1	—	16 days after norm. lab., fever and anæmia, but general condition good.	l. o.	u. o. c., p. t.	R.	L.	Not noticed.?	6/xi/1913	Strong to sigmoid, uterus, bladder and abd. wall.	R
3	D.	33	1	0	During preg.; delivered Feb. 4th, 1914.	r. o.	d. (16 × 10 × 8·7 cm.); small papillary growth excised surface of o.	R.	L.	Size of hen's egg at 3rd mth. of preg.	7/v/1914	None.	R
4	C.	30	3	0	During lab. (2¼ hrs.).	l. o.	Large m. c.; 2 galls. bloody contents; ruptured; rmvd. 12 hours after delivery.	R.	L.	Sudden rapid growth 1 mth.	29/i/1915 28/i/1915	None.	R
5	C.	32	5	2	1 mth. after lab. (tapped by doctor).	l. o.	Large m. c.; tarry contents.	R.	L.	Not noticed till after lab., when growth rapid.	27/ix/1917	None.	R

Index of abbreviations.—L., living. D., dead. sup., suppurating. r., right. l., left. o., ovary. p., parovarium. m. c., multi-ocular cyst. u. c., unilocular cyst. p. t., pedicle twisted. d., dermoids. A., aborted. v., vertex. f., forceps. om., omentum. b., breech.

N.B.—In Cases 1, 7, 8, 9, 11, 12 the mother's recovery (R) after labour was complicated—in Cases 1 and 8 by high fever and extreme maciation, in Case 7 by pain after the first month; in Case 9 the mother was constantly ill after labour, and the child (cross birth, ersion) died 32 hours after; in Case 11 the mother had fever and a rigor, with peritonitis; and in Case 12 had fever and was bedridden, nable even to move her legs for four weeks. In Case 33 the child was born alive but soon died, and in Case 40 the mother recovered nd subsequently had a living child in September, 1907.

ymptoms are acute and may closely simulate strangu-ation or necrobiosis of a fibroid, acute appendicitis, or yonephrosis. The symptoms of rupture will depend pon the nature of the contents; in some cases the ccident scarcely gives rise to any other effect than lteration in the shape of the abdomen from the peri-oneal effusion; in others shock, pain, and vomiting usue. Malignant tumours are fortunately rare; they ay cause emaciation and cachexia and are usually ainful, though in some cases there are no symptoms hich suggest malignant disease.

DIAGNOSIS.

The diagnosis of pregnancy complicated with ovarian imour is usually not difficult. In some cases of early regnancy, where the ovarian tumour is large or adherent, may be difficult to make out the shape and consist-ace of the uterus. But in all cases where menstruation delayed pregnancy should be suspected, and the olour of the vagina, the consistence of the uterus, and the appearance of the breasts should be investigated; the presence of morning vomiting may help in the diagnosis. In the early months the increased width of the uterus may be made out by examining the patient bimanually in the dorsal position with the fore and middle fingers of the right hand on each side of the cervix. In conducting this examination the greatest gentleness should be used; any forcible pressure may easily separate the ovum, an objection which applies to the so-called "Hegar's sign." In the second half of pregnancy the "certain signs" (heart-sounds, parts or movements of the child and ballottement), the contraction of the uterus, and the breast changes, usually render the diagnosis of pregnancy easy if care is employed; but hydramnios may render the detection of the fœtus difficult even when the patient is placed in the kneeling position which, causing the fœtus to fall to the most dependent part of the abdomen, renders its detection by ballottement easier. It is important to bear in mind the softness of the supravaginal cervix—the physical condition which enables Hegar's sign to be obtained—which may cause the body to be apparently separate from the cervix and may, therefore, be mistaken for an ovarian tumour. Occasionally a lop-sided pregnant uterus is met with, which I have known taken for an extra-uterine tumour. If the uterus is very thin-walled—and sometimes it feels as thin as an ovarian cyst—the body, or a bulging portion of it, may be mistaken for an ovarian cyst if careless examination is made. Error is avoided by careful bimanual examination in the dorsal position, when under gentle manipulation the uterus will be felt to contract, to become one with the cervix and regular in shape.

In some cases of ectopic pregnancy a doubt may exist as to whether the enlarged uterus is pregnant or not and the tubal swelling is a mole, a hæmatocele, or an ovarian cyst; but the hæmorrhage which usually occurs in these cases will lead to an exploration of the uterus, which is found to be unimpregnated. The rare coexistence of intra-uterine and extra-uterine pregnancy must be borne in mind.

The recognition of the ovarian tumour is usually easy, as it ordinarily forms a cystic tumour movable apart from the uterus, on a pedicle which can sometimes be detected under anæsthesia. If the tumour is small it may easily escape notice in the lumbar region or may be mistaken for a tumour of the kidney or gall-bladder. Examination under anæsthesia facilitates the diagnosis in these cases. If the tumour is twisted and inflamed it sometimes closely simulates a necrobiotic or strangulated uterine fibroid. Under an anæsthetic its cystic character can usually be made out. Tumours of small size impacted in the pelvis often feel as hard as uterine fibroids, for which they may be mistaken. Rectal examination is of great value in these cases. It must be remembered that uterine fibroids may be as cystic as ovarian tumours, and, on the other hand, ovarian tumours may be solid, and are often associated with hydro-peritoneum, which is rarely found with uterine fibroids. In some cases the diagnosis cannot be made between these two conditions with certainty, though in a patient under 25 a uterine tumour is very unlikely to occur.

If the tumour be ruptured the symptoms will depend upon the nature of its contents. In some cases the accident is followed by few symptoms; in others shock, pain, vomiting, and peritonitis rapidly ensue. If the tumour be multilocular the unruptured portion of the cyst can be felt, and there are signs of free fluid in the abdomen. If the cyst be unilocular the only sign is the presence of free fluid in the peritoneum, which should always be suspected to be due to a ruptured cyst if there are no renal, hepatic, or cardiac causes present. Suppuration of ovarian cysts is indicated by high fever, wasting, tenderness, and occasionally tympanites; a history of tapping or injury during labour is often obtained. Twisted tumours usually give rise to local peritonitis and to fever which usually subsides after a few days; a considerable rise of temperature lasting some days after the acute peritonitis has subsided will usually indicate that suppuration has taken place. Malignant ovarian tumours are fortunately rare during pregnancy. They are usually solid, bilateral, and associated with hydroperitoneum and wasting; secondary nodules may be felt in the abdomen and in Douglas's pouch.

REMARKS ON TREATMENT.

The treatment of ovarian tumours apart from pregnancy is generally acknowledged to be removal as soon as practicable. When pregnancy exists the matter is not so simple; the interests of the child and the desirability of maintaining the fertility of the mother may justify a postponement of the operation. In the introductory remarks a case was mentioned where this was done. In another patient, from whom a dermoid was removed before the occurrence of pregnancy, the other ovary was found to be cystic, but was not removed, as the patient was childless, with the result that in this case also the patient has since had a living child. Case 38 is another illustration of the value of not removing a dermoid. On the other hand, in Case 19 the patient, pregnant for the first time, was operated on for bilateral dermoids at the twelfth week, aborted, and has, of course, remained childless. The tumours were causing no trouble, and were discovered during an examination on account of sterility a few months previously. Had the operation been postponed in all probability she would have had a child; as it was she aborted as a result of the operation.

I should like again to direct attention to the results to the child in this series, according as the operation was performed during pregnancy or after delivery. In cases operated on the infantile mortality was 1 in 3; the abortion-rate, 1 in 3 of the cases operated on in "early pregnancy." In those *not* operated upon during pregnancy, although sometimes unskilfully treated during labour, the infantile mortality was only about 1 in 5, and might have been reduced to 1 in 10 by more skilful treatment during labour; the abortion-rate was about 1 in 10. Five at least (possibly all) of the six cases of bilateral ovarian tumours unoperated on during pregnancy did not abort; both the cases of bilateral ovariotomy during pregnancy aborted. From these figures it appears that operation during pregnancy involves an increased risk to the child. The statistics, based on published cases, in McKerron's classical work, show that the risk of abortion is least in the early months of pregnancy. Although the risk to the child of operation during pregnancy should be taken in most cases, to prevent the grave consequences which may result to the mother from leaving the tumour till the end of pregnancy, yet in uncomplicated cases of small tumours giving rise to no symptoms in patients who are childless, and particularly when bilateral tumours are present, the operation should be postponed, at least until the child is viable.

The treatment of ovarian tumours complicating pregnancy, labour, and the puerperium has been by some writers considered too much from a surgical standpoint; the obstetrical aspect is not less important, and in some cases, as in No. 23, is the dominant factor. Amongst the 19 cases which I have personally treated during pregnancy there were three cases of contracted pelvis which necessitated induction of premature labour in two of the cases, and would have done so in the third had the patient not aborted. It is clear that a contracted pelvis may profoundly modify our treatment, and that an obstetric examination of the pelvis should be carefully made in every case. Then the existence of bilateral tumours in patients who have not had children may justify the postponement of the operation in the hope of obtaining a living child and should lead us whenever possible to conserve some part of the ovary (Case 40).

The following scheme of treatment was published in 1909 (Trans. Amer. Gyn. Soc.). As I have not seen any reason for modifying it, I reproduce it here with slight verbal alterations.

SCHEME OF TREATMENT.

A. *During the First Half of Pregnancy.*

Ovarian tumours should be removed wherever their situation and whatever their size.

Exceptions.—The following tumours should no usually be removed: 1. Lutein cysts complicating hydatidiform mole; these often subside spontaneously. 2. Bilateral tumours causing no symptom if the patient is childless; or, if operated on, part of an ovary should be left behind. 3. Primary adherent malignant cysts. 4. Secondary malignant cysts.

B. *During the Second Half of Pregnancy.*

(*a*) All *large* ovarian tumours and ruptured, inflamed, and strangulated tumours should be immediately removed.

(*b*) Small tumours which are in the abdomen or which can be easily pushed up out of the pelvis in the knee-chest or Trendelenburg position should be watched, and, if no untoward symptoms arise, should be removed either at the end of pregnancy or towards the end of the first stage of labour or after delivery.

(*c*) Small tumours which are incarcerated in the pelvis and cannot easily be replaced in the abdomen may be watched and removed at the end of pregnancy, or, if circumstances will allow, towards the end of the first stage of labour. If the tumours are adherent or solid, Cæsarean section should be performed.

In all ovariotomies during pregnancy the vessels of the pedicle should be separately tied; the pedicle should be ligatured as far as possible from the uterus, and morphia should be given for the first two or three days after operation.

C. *During Labour.*

The best treatment is abdominal ovariotomy, immediate in the case of large tumours, at the end of the first stage or after delivery in the case of small tumours. When the operation is performed at the end of the first stage a second operator may deliver the child by forceps while the tumour is being removed. If the tumour be incarcerated in the pelvis and cannot be pushed up in the Trendelenburg position, the uterus should be withdrawn from the abdomen in order that the tumour may be dealt with.

For solid and adherent tumours occupying the pelvis Cæsarean section may be necessary. It should not be performed for cystic non-adherent tumours. When labour is advanced and a cystic tumour is impacted in the pelvis, the circumstances may render it advisable to deliver the patient by the natural passages after evacuating the contents of the tumour by incision and packing the cyst with gauze; but the tumour should, if practicable, be removed within 24 hours, preferably through an abdominal incision.

Vaginal ovariotomy may be performed in non-adherent cases; but, though simpler in technique, avoiding an abdominal scar and requiring fewer instruments, it is inferior to the abdominal operation in that there is greater danger from hæmorrhage, difficulty in safely tying the pedicle, the necessity of cutting up the tumour, the impossibility of examining the other ovary, and from the presence of the vaginal wound.

Induction of premature labour, forceps, version, and simple tapping of a cyst as means of overcoming the dystocia produced by ovarian tumour are absolutely contra-indicated.

D. *In the Puerperium.*

Ovarian tumours should be removed as soon as practicable, when possible within 24 hours of delivery. If there is doubt as to the aseptic condition of the uterus, a delay of a week or two may be advisable, unless indications of strangulation or infection of the tumour arise, when the tumour should be immediately removed.

INFLUENZA AS AN ÆTIOLOGICAL FACTOR IN NEPHRITIS.*

WITH AN ACCOUNT OF FOUR CASES OF POST-INFLUENZAL NEPHRITIS IN THE SAME FAMILY.

BY W. W. D. THOMSON, M.D., B.SC. BELF., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN, ROYAL VICTORIA HOSPITAL, BELFAST;
AND
H. F. MACAULEY, M.B., B.CH. BELF.,
ASSISTANT SURGEON AND ANÆSTHETIST, MATER INFIRMORUM HOSPITAL, BELFAST.

THE appalling ravages of the pulmonary complications of the various influenzal epidemics have naturally tended to divert our attention from another less apparent, but by no means negligible one, nephritis, with which it is the purpose of this paper to deal. Although this complication is not followed by the shocking death-rate of pneumonia, yet in it lurks a serious menace to the future health of the community.

Description of Cases.

In the following series of cases nephritis focussed attention as a sequel in an extraordinary and unmistakable manner, no less than four cases being observed among the children of one family. This household consisted of the father and mother and eight children living in very poor circumstances. The father had a very severe attack of influenza in June, 1918, while the other members of the family were stricken by the malady in the epidemic of October, 1918.

CASE 1.—William, a boy of 11 years, had a typical attack of influenza. After a fortnight he seemed to have recovered, and for almost three weeks he was running about in his usual state of health. At the end of that time his mother noticed a swelling "around his eyes," and two days later this swelling was general over his whole body. He was then taken to the Mater Infirmorum Hospital. On admission to hospital general anasarca was present, the skin pitted on pressure over the whole body, the genitals being so swollen as to be almost translucent. His systolic blood pressure was raised to 135 mm. Hg, but there was no hypertrophy of the heart nor accentuation of his aortic second sound. He suffered from vomiting, anorexia, and constipation, lying in a drowsy, apathetic state, very foreign to his usual temperament, as we found out later. There were no retinal changes present. He still had marked bronchitis resulting from his influenza.

Urine: This boy had always suffered from incontinence, and so it was found impossible to measure accurately the output of urine, but it was evidently very scanty. It was laden with albumin; many epithelial, granular, and blood casts were present, also red blood corpuscles and leucocytes; the reaction was strongly acid.

Under the usual treatment his urinary output increased and his œdema quickly cleared up. His excretion of phenol-sulphone-phthalein, tested two days after admission, was 32 per cent. and the chloride concentration of his urine was high—1·3 per cent. His acute nephritis was evidently of the resolving type, as described by Keith and Thomson,[1] and a good prognosis was given. A few days later all traces of œdema had disappeared and his urine contained only a trace of albumin. When he left hospital, three weeks later, his urine was free from albumin and casts.

CASE 2.—Robina, aged 13, a rather undersized child for her years, worked in the preparing room of a mill on alternate days. She also had a severe attack of influenza during this epidemic, being confined to bed for 18 days. After four days' convalescence she returned to the mill.

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* A paper read before the Ulster Medical Society.

Six days later she was admitted to hospital with marked puffiness under the eyelids and a marked pad of œdema over the sacral region.

Urine: She was passing on an average 10 oz. daily. Sp. gr. 1016. The reaction was strongly acid and the urine was laden with albumin; very numerous epithelial casts, blood, leucocytes, and kidney epithelial cells were found on microscopic examination.

On the second day after admission she developed a well-marked lobar pneumonia. Her blood, taken on this day, was found to contain 1·95 g. of urea per litre. There was complete retention of chlorides. Owing to her grave condition the excretion of phenol-sulphone-phthalein was not tried, as previous experience in war nephritis had shown that in the acute kidney this procedure was not entirely free from risk.[1] After three days' illness her temperature fell to normal and for the next seven days she improved rapidly; then, without warning, she had six uræmic fits in quick succession. In the intervals between the convulsions her systolic blood pressure was 125 mm. Hg. Her blood, taken at this time, showed that the urea was reduced to 0·33 g. per litre, and the chloride concentration was 1·6 per cent. As these figures showed that her kidneys were functioning well, despite her grave clinical condition, a good prognosis was given. The prognosis was justified, as 12 hours after her last fit her condition of hebetude cleared up, and the normal bright and intelligent disposition was regained.

The albumin in her urine, which up to this had oscillated around 1 g. per litre, began to decrease, and a fortnight later had entirely disappeared. She was allowed up, her urine being albumin-free, but after about three weeks albumin again reappeared in small amount, and on clinical examination at this time her heart was found enlarged; the apex beat was in the nipple line and a mitral systolic murmur was present. Her blood urea, however, only amounted to 0·42 g. per litre. When put back to bed and reduced to a milk diet, after a few days the albumin again disappeared and has remained absent ever since. The hypertrophy of her heart still persists, but no systolic murmur is now heard.

CASE 3.—Irene, aged 9 years, had a very slight attack of influenza. She was the first of the family noticed by her mother to have "become swollen," but the swelling only amounted to a slight puffiness of the lower lids, and occurred about three weeks after her influenzal attack. Since the swelling appeared the mother observed that the child was passing very little urine. On admission there was still present a slight puffiness of the face; the urine contained a trace of albumin, which persisted for almost a fortnight. No functional examination of the kidneys was undertaken.

CASE 4.—Annie, aged 4 years, had a similar history of influenza, followed by a period when she was thought to be quite well. Later, as in the other cases, œdema appeared, and was present on admission. In this case the presence of albumin was inconstant, although the urine contained many epithelial casts, a few blood and granular ones, red blood corpuscles, leucocytes and kidney epithelial cells. Her excretion of phenol-sulphone-phthalein in two hours was 40 per cent., and the chloride concentration of her urine was 1·04 per cent. On departure from hospital three weeks later her urine was normal.

Family Albuminuria: Survey of the Literature.

In all these cases a careful inquiry was made as to the possibility of renal trouble existing previous to the influenzal attack, but the suspicion was absolutely discountenanced in every case. Again, it was thought possible that the nephritis might be attributed to some drug—e.g., phenol (which was largely used in Belfast by the public as a prophylactic)—but no medicine of any description was given, except an entirely innocuous purgative mixture supplied by a neighbouring chemist. None of these children gave a history of scarlatina. A careful clinical examination failed to discover any signs of a recent attack of that disease, such as desquamation, rhinitis, or inflamed tonsils. It is quite possible that these children possessed a familial predisposition to renal disease, an intrinsic weakness of the kidneys, the extrinsic cause of the nephritis being supplied by the influenzal toxin.

This family weakness is also illustrated by an interesting series of four cases of acute nephritis of unknown origin in the same family reported by Benson[2] in 1893. One of the children, aged 12 months, developed general anasarca on April 6th, 1889, and died in uræmic convulsions on May 1st of same year. On April 26th, 1890, another child, aged 4, took ill, and albumin was found in the urine; dropsy appeared in the middle of 1891; this disappeared, but recurred again in the spring of 1892, and the child died in May, 1892. In the same year another child, aged 3, took acute nephritis and died a year later; while in 1893 the baby, aged 13 months, developed the same condition.

A remarkable example of family albuminuria is described by Dr. Newbery Fergusson,[3] in which the father, mother, and eight members of the family had albuminuria, which, however, gave rise to no symptoms. I append the table given in his paper:—

	Female,	alive,	56,	alb.	slight.
	Male	,,	54	,,	badly.
	Female	,,	53	,,	,,
Father, alive, 87, alb. slight.	,,	,,	52	,,	slight.
Mother ,, 78, ,, badly.	,,	,,	51	,,	badly.
	Male	,,	49	,,	,,
	,,	,,	47	,,	slight,
	Female	,,	45	,,	badly.

On inquiry from various practitioners in the city as to the incidence of influenzal nephritis among their patients, it was found that cases of nephritis, more or less severe, and directly attributable to influenza, were by no means uncommon, particularly in those instances where the practitioner followed the routine of examining the urines of his convalescent cases.

Likewise, on a search through the literature, much interesting information on the subject was gleaned. First of all, in the literature of the epidemic of influenza of 1889–91 much diversity of opinion as to the ætiological relationship of nephritis and influenza is apparent. Naturally one's mind is first directed to Leichtenstern's[4] article on influenza in Nothnagel's Encyclopædia.

This authority writes that influenza does not occupy any particularly prominent position as far as the frequency of renal disease is concerned, and is by no means so dangerous to the kidneys as is, for instance, scarlatina, diphtheria, pneumonia, erysipelas, small-pox, &c. Among 439 influenza patients he saw only two cases of acute hæmorrhagic nephritis; in the German army among 55,263 patients only 10 suffered with severe inflammation of the kidneys. However, he continues: "But even at the time I called attention, in my influenza lectures, to the fact that during the months after the termination of the epidemic remarkably many cases of nephritis were admitted, without any ætiological history other than an antecedent attack of influenza. Perhaps these were cases of a post-influenzal nephritis, analogous to those following scarlet fever, tonsillitis, and diphtheria."

Dr. Samuel West,[5] in an address on influenza, says: "Nephritis is a rare complication, and met with rather after than during the acute stage." Likewise Lord,[6] writing in Osler and Macrae's "System of Medicine," states that influenza seems to spare the kidney in the vast majority of cases; in very rare instances has a nephritis been noticed.

Sir Bertrand Dawson,[7] in Allchin's "Manual of Medicine," says: "A large quantity of albumin, with or without hæmaturia, may be present; sometimes it is accompanied by œdema and denotes nephritis, but more often it does not."

Sir J. W. Moore,[8] in the "Encyclopædia Medica," states: "Albuminuria is by no means uncommon in influenza, but nephritis must be looked upon as an infrequent complication or sequela. When it occurs it is a true acute infective glomerulo-nephritis."

Goodhart,[9] in Allbutt and Rolleston's "System of Medicine," writes: "Albuminuria and hæmaturia were not uncommon in the train of influenza, with nephritis as an occasional result."

On the other hand, Grainger Stewart,[10] in his address on medicine at the British Medical Association in 1894, said that "the urinary system was affected in many ways. Sometimes there was a mere passing albuminuria, sometimes a formidable hæmaturia or serious inflammation of the kidneys, and in some epidemics, as in one of those recently described in Egypt, such changes were frequent and in a considerable number of instances proved fatal by uræmia."

Speigelberg,[11] in Pfaundler and Schlossmann's "Diseases of Children," states: "Albumin occurs in 6 per cent. to 10 per cent. of cases, and acute nephritis may develop similar to that in scarlet fever, and cases of the acute hæmorrhagic type have been reported."

Senator,[12] of Berlin, writing in Nothnagel's "Encyclopædia of Practical Medicine," takes a very decided view, and states that influenza, if it does not surpass scarlatina as a cause of nephritis, is at least nearly on a par with that disease.

Fenwick[13] considered that an attack of influenza often proved a touchstone of real value in detecting any weak point or predisposition to disease in the urinary tract.

Watson,[14] discussing the causation of acute nephritis in a series of cases, traces influenza as an exciting cause in 10 per cent.

In a paper entitled "Renal Affections following Influenza" Baumgarten[15] states that he has become convinced that damage to the kidney is a frequent and sometimes serious result of grippe. The form which this damage is capable of taking seems manifold. Apart from transient albuminuria he has found in the train of influenza acute degeneration of the kidney, acute inflammation, both varieties of the chronic diffuse nephritis, and finally cases of persistent albuminuria. An epidemic of influenza thus becomes harmful in a way which is not at once apparent, because the damage to the kidney may not become manifest until the patient is believed to have recovered from the original disease, and the epidemic is forgotten. Baumgarten's contention is confirmed by the statistics of his own life insurance practice. In the five "grippe" years in America (1890-94) he examined 1222 apparently healthy adults, of whom 3·35 per cent. were rejected for albuminuria. In the immediately preceding five years (1885–89), out of 1029, roughly an equivalent number, only 0·77 per cent. were rejected for albuminuria. This result is on a par with Leichtenstern's already quoted observation as to the increased incidence of nephritis in Germany after the same influenza epidemic.

Cases of acute nephritis arising from influenza are also reported in the literature by Mansel Sympson,[16] Piggott,[17] Fraser,[18] Drew,[19] Russell,[20] Ribbert,[21] Strumpell,[22] Krahl,[23] Anton,[24] &c. Fraser drew attention in his case to the great rise in the amount of albumin excreted with the onset of bronchitis.

As regards the recent epidemic the literature on the subject is more unanimous, and the importance of nephritis as a complication of influenza is more clearly recognised.

Herringham,[25] in opening the discussion on influenza at the recent meeting of the British Medical Association, states that in June, 1918, epidemic nephritis was fairly common, but in the autumn epidemic the most *common* complication was nephritis, while in the third wave in February the incidence of nephritis was lessened.

In the report of the influenza epidemic of 1918 in the British armies in France by the Influenza Committee of the Advisory Board to the D.G.M.S.[26] it is stated that the chief complications after the pulmonary were albuminuria and nephritis. In the first few weeks of the epidemic cases were generally reported to be free from albuminuria, but about the same time as pulmonary infection appeared albuminuria also began to be noticed. The Medical Research Committee[27] has already drawn attention to this connexion: "In the winter of 1916–17 a considerable number of cases of nephritis occurred as a complication of the very severe bronchitis and broncho-pneumonia prevalent at the time."

Symonds,[28] in a paper entitled "Nephritis in Relation to the Recent Epidemic of Influenza," describes a series of 22 cases of influenzal broncho-pneumonia complicated with nephritis with 11 deaths, autopsy revealing an acute degeneration of the kidneys.

Colonel Soltau,[29] speaking at the discussion on influenza in the Royal Society of Medicine, said: "Many patients had slumbering or latent nephritis lighted up, and of these the majority died."

In the same discussion Whittingham[30] stated that "albumin was present in 100 per cent. of the cases on the second day of the disease. Casts were present in 50 per cent. cases on the third day to fifth day. The albuminuria gradually diminishes, but if the men are returned to duty too soon after mild influenza there is risk of nephritis developing."

Cole and Rudolf,[31] speaking of the epidemic at Bramshott in September–October, 1918, declared that in almost all febrile cases a mild nephritis developed, the urine containing albumin, red and white blood cells, and granular and hyaline casts. In some cases the urine was bloody and diminished in quantity. Post mortem many kidneys were hæmorrhagic like those of scarlatinal nephritis.

Abrahams, Hallows, and French[32] drew attention to the high percentage of influenzal-pneumonia cases complicated by acute nephritis, and state that such cases would escape detection were reliance placed on clinical evidence alone without examination of the urine. A peculiar feature of these cases (also remarked by Symonds) is the absence of œdema. Without a routine examination of urine influenzal patients might be discharged as cured while still nephritic. It is from cases such as these that Rose Bradford's small white kidney "of unknown origin" later on develops. Post mortem these observers found that the large, red blood-oozing kidneys of the type seen in acute scarlatinal nephritis—an acute glomerular nephritis—were constant in their appearance in fatal cases.

In civilian practice Davies[33] records three cases of acute nephritis following influenza, with two deaths from uræmia. He also remarks that chronic nephritis is a more common sequel than acute nephritis.

Solfre of Naples[34] emphasises the frequency of nephritis in severe cases of influenza, and notes the constancy of this complication in fatal cases, while Dalimier[35] lays great stress on the prognostic importance of the renal functions. He states that the severe and rapidly fatal cases were those in which albuminuria was most marked. This is also the opinion of Sir John W. Moore,[36] who measures the gravity of a severe attack by the intensity of albuminuria.

Post-mortem the kidneys, as described by Douglas Symmers,[37] of New York, were found enlarged and congested, the capsule was tense and stripped easily, leaving a dull injected surface which bulged considerably beyond the cut edge of the capsule. Microscopically a diffuse cloudy swelling of the epithelium, especially of the convoluted tubes, was present.

There is, therefore, a very considerable weight of evidence to prove that influenza is a very important ætiological factor in nephritis. Its recognition as such means a further encroachment on the ever-diminishing domain of so-called idiopathic nephritis, and in this connexion the view ably advocated by Professor H. B. Day,[38] that war nephritis is but a complication of trench fever, may be recalled.

Conclusions.

1. That nephritis is a more frequent complication of influenza than is commonly thought.

2. That the virus of influenza may affect the kidneys in various ways: (*a*) By producing a temporary albuminuria as seen in many other acute infectious fevers. (*b*) By causing an acute nephritis during the course of the disease, especially if respiratory symptoms are present. (*c*) Nephritis may arise during convalescence, as in scarlatina. The damage to the kidney may not become manifest until the patient is believed to have recovered from the original disease. (*d*) A dormant or latent nephritis may be lighted up.

3. Nephritis may follow even mild cases of influenza.

4. Nephritis occurring during the course of influenza may be masked by the respiratory symptoms, and only careful routine examination of the urine may demonstrate its presence, while some of the cases arising after the symptoms of influenza have abated may show such slight symptoms—transient œdema, slight oliguria, or capricious albuminuria—that they may easily be missed.

5. That the urine in this disease should be frequently tested not only during the disease but also during convalescence.

6. That probably the frequency and severity of this complication varies in different parts of the world and in different epidemics.

7. That in the next few years we may expect in examination for life insurance to find a higher percentage of albuminurics.

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THE FACTORS CONCERNED IN ASTHMA AND THEIR TREATMENT.

BY D. W. CARMALT JONES, M.D. OXON., F.R.C.P. LOND.,
PROFESSOR-ELECT OF SYSTEMATIC MEDICINE, UNIVERSITY OF OTAGO.

THIS paper is an attempt to formulate a working hypothesis as to the various pathological conditions which underlie the clinical phenomena of asthma and to suggest treatment appropriate to each of them, treatment aimed rather at prevention of the paroxysm than at its relief.

Definition of Asthma.

It is necessary first of all to make some definition of the title asthma and decide how much is to be included in it.

Hyde Salter's book begins with the words, "Spasmodic asthma—paroxysmal dyspnœa of a peculiar character, generally periodic, with intervals of healthy respiration between the attacks." This may be taken as authoritative, but this author regarded the phenomenon as a disease, whereas at present most physicians consider it as a symptom, and as such it is considered in this paper.

The word asthma is now used, at any rate by most patients, in a fairly extended sense, including paroxysmal dyspnœa from many causes and also something more than paroxysmal dyspnœa. A healthy man after violent exercise is short of breath; a person suffering from heart disease is short of breath on slight exertion; but where there is no restriction to the breathing, which is rapid and copious, and when each breath gives some relief, the condition might, if there were not already too many distinctions of the kind, be called *polypnœa* rather than *dyspnœa*. The asthmatic, however, suffers from definite *dyspnœa*, each breath is difficult, and is performed against resistance. The dyspnœa occurs in paroxysms independent of obvious external cause like exercise, and in well-established cases a condition of mild chronic dyspnœa is found in which the accessory muscles of respiration are constantly employed. This chronic condition is closely associated with emphysema, but is to be distinguished from the relatively rare condition of gross obstruction of the large respiratory passages from within or without.

The word asthma is therefore used here to include spasmodic attacks of difficult breathing, without obvious exciting cause, which lead to a condition of mild chronic dyspnœa with exacerbations. It is a respiratory symptom that occurs in bronchitis, heart disease, renal disease, and alimentary disease, and also as a pure neurosis—in fact, in one or other disorder of all the great physiological systems.

A respiratory symptom is a disturbance of the respiratory function, which is said to be controlled by the respiratory centre in the medulla, and it should be admitted that for the physician such "centres" are used as a convenient hypothesis rather than as the accurately localised points on which the experimental physiologist founds his work. The respiratory centre is normally stimulated to activity by the presence of carbonic acid in the blood. It controls the neuro-muscular apparatus whereby the lungs are filled and emptied, some parts of which are constantly in use, and others, the accessory muscles, are held in reserve to reinforce respiration whenever increased action is acquired. But the respiratory muscles can be controlled by other means than the CO_2 content of the blood. Their movements can be modified at will, and they are capable of the most refined and highly coördinated voluntary action, as when used by expert singers. No other of the great visceral systems is under like control for a purpose quite distinct from the discharge of its essential functions, and since this voluntary control exists it is liable to hysterical disturbance. Hysterical mutism and aphonia are common phenomena, and all observers are agreed as to the large neurotic element in asthma. Attacks of spasmodic dyspnœa, frequently nocturnal, have been observed by the writer among troops suffering from war neurasthenia; it is one of the visceral disturbances of that condition, and may be regarded as due to an instability of the respiratory centre.

If one may be allowed to postulate an unduly irritable state of the respiratory and other visceral centres, a working hypothesis for asthma is readily constructed. The respiratory centre has its normal stimulus in the CO_2 content of the blood, and the respiratory movements are also subject to voluntary control, but the centre can also be reached by other routes. Sneezing and coughing are both reflex modifications of respiration, and indicate that there is an afferent path to the centre from the respiratory mucous membrane. But the act of sneezing can be induced by looking at the sun, so that yet another surface, the conjunctiva, must have afferent connexions with the respiratory centre.

Analogy with Hay Fever.

Much light is thrown on the problem of asthma by consideration of the cognate problem of hay fever, about which a good deal of accurate information exists. When the grass is in flower and its pollen is in the air some persons suffer from the persistent sneezing attacks which are called "hay fever." The pollen falls on the nasal mucous membranes of the whole community, but only a small proportion suffers from hay fever; these patients are hypersensitive to pollen, and at any time of year a drop of watery extract of pollen instilled into the conjunctival sac will induce in them an attack of sneezing. They are especially susceptible to a toxin in the pollen, and by appropriate subcutaneous injection they can be immunised against it.[1] The question arises whether in such patients it is the respiratory or the vaso-motor centre which is disturbed; it might well be the latter, vaso-dilatation and effusion occurring at the site of absorption, and sneezing being induced by the exudation as it would be in a healthy person. Probably both centres are stimulated, and the point is worth noting, since bronchial vaso-motor turgescence and bronchial muscular spasm have both been held responsible for the phenomena of asthma. The average hay fever subject is only susceptible to the pollen of a few grasses, which are specific for him, but more sensitive persons can be stimulated by a greater variety, by the pollen of some flowering plants, by the effluvia of particular animals, and so on. The specificity of certain toxins is also traceable in asthma. We have therefore to think of a respiratory centre closely associated with a vaso-motor centre, and both liable to be excited to action in a reflex manner by means of a specific toxin.

The study of hay fever establishes, or at least suggests, the following facts:—

1. The respiratory centre is abnormally irritable in some persons.
2. An association exists between the respiratory and vaso-motor centres, so that both may be excited by a single peripheral cause.
3. This suggests the possibility of a general association of the visceral centres.
4. The respiratory centre may be excited by impulses from the respiratory mucous membrane with the precipitation of a reflex act.
5. The respiratory centre may be excited by stimulation of a mucous surface which is separate from the respiratory system.
6. Specific chemical substances exist which readily stimulate the respiratory and vaso-motor centres when applied to mucous surfaces.

These observations may be applied to the problem of asthma in the following way:—

1. *The over-excitable respiratory centre.*—Chronic bronchitis is one of the commonest diseases in this country, but the association with it of asthma of any severity is not very frequent, the percentage of chronic bronchitics who have spasmodic dyspnœa is not very high, and one may reasonably postulate an over-excitable respiratory centre for these patients, since they suffer from a particular disturbance of the function of breathing which others, with a similar morbid condition of the lungs, do not. An irritable centre goes far to explain the asthma of renal disease, where excretion is imperfect, and noxious chemical substances are retained in the circulation; these may readily disturb such a centre, whose normal stimulus is the CO_2 content of the blood.

2. *Association of respiratory and vaso-motor centres.*—Hyde Salter claimed that the asthmatic paroxysm was due to spasm of the bronchioles; this is supported by its immediate relief by morphia. Others have regarded it as due to vaso-motor turgescence, and this view is supported by the relief given by adrenalin. Vaso-motor disturbance is obvious enough in hay fever, with its suffused eyes, and by far the most probable explanation is that both centres are closely associated and one not affected without the other.[2]

3. *General association of visceral centres.*—The asthma of cardiac disease suggests a further association of visceral centres, the cardiac centre, upset by the impulses coming from a diseased heart, affecting an associated respiratory centre.

4. *The respiratory centre aroused by irritation of the respiratory mucous membrane.*—The cough of bronchitis is the common instance of this, and the fact that the great majority of cases of asthma are bronchial in origin demonstrates the effect of chronic irritation of the bronchial mucosa on the respiratory centre of the susceptible.

5. *The respiratory centre aroused by irritation of other mucous surfaces.*—This almost follows from Section 3, but is more clearly demonstrable. The precipitation of asthmatic attacks by indigestible food is a common occurrence, and a case is quoted below where the attacks were directly traceable to the presence of a tapeworm, and ceased with its removal. Irritation of the afferent nerves from the gastro-intestinal tract appears to induce disturbance in the respiratory centre, just as irritation of the conjunctiva does in hay-fever subjects.

6. *Specific chemical substances affecting the respiratory centre.*—Ten years ago the writer conducted some experiments in the treatment of chronic

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[1] Noon: THE LANCET, June 10th, 1911, p. 1572: Freeman, THE LANCET, Sept. 16th, 1911, p. 814.

bronchitis by means of vaccines in Sir Almroth Wright's laboratory at St. Mary's Hospital. In the course of this work an organism was isolated from the sputum of a female patient suffering from bronchitis and severe asthma. She agreed to try the results of inoculation treatment, and a vaccine was prepared and injected, the patient being instructed to return in a few days. She reported on returning that though the cough was no better the breathing was much relieved; treatment was continued, and the improvement was maintained for many months, when the patient ceased to attend hospital and was lost sight of. The same vaccine was extensively used, for the hope was entertained at the time that the cause of asthma had been discovered. About 100 patients were treated and 50 attended for treatment with some regularity, with the result that about 35 showed improvement in the frequency and severity of their attacks.[2] That is to say, a considerable number of patients who suffered from bronchial asthma underwent improvement of that symptom on immunisation against a specific micro-organism found in the bronchial mucus.

This presents a close analogy with what occurs in hay fever, the symptoms of which are known to be due to a specific poison acting on a mucous membrane connected with the respiratory centre. The inference is that this organism produces a toxin which irritates the afferent bronchial nerves in such a way as to induce either bronchial spasm or vaso-motor turgescence or both. It has never been possible to guarantee improvement by the use of a vaccine of this organism and it is improbable that it is the only one concerned, its description therefore need not be repeated here, but these observations indicate that the asthmatic paroxysm itself may depend on the toxins of certain bacteria acting on a susceptible centre. Some sensitive patients are rendered asthmatic with any form of inflammation of the mucous membrane, in others definite kinds of infection are required. The successful treatment of asthma by cauterising the nasal mucous membrane and so destroying the nerve-endings of a particular area and thus preventing the passage of afferent impulses to the centre proves how slight a lesion may be required to set off the paroxysm and indicates the careful surgical treatment of all accessible abnormalities in the naso-pharynx.

Points in Treatment.

(1) *The respiratory centre.*—In the treatment of any case of asthma the points to be considered which emerge from the foregoing are as follows: The respiratory centre, the state of viscera outside the respiratory tract, the state of the respiratory mucous membrane: they are all illustrated in the accounts of cases which follow. The physician should seek means to depress an irritable centre, to remove sources of irritation from mucous membranes outside the respiratory tract, and to treat all abnormalities of that tract itself whether by surgery or therapeutic immunisation.

The following case is one of purely hysterical disturbance of respiration:—

A patient suffering from "shell shock" was examined in a hospital in France. His general appearance at first sight suggested pneumonia; the respirations were 120, with a pulse-rate of 80; he was mute and paretic. While under examination an aeroplane passed over the tent and the patient's attention was distracted for a few moments, during which the respirations fell to a much slower rate, but rose again when the machine was out of hearing. The mutism and paresis were removed in the usual way by demonstration and re-education, during which time the breathing became normal.

Another asthmatic patient definitely dates the onset of attacks from some shock in the trenches, being blown up and buried, or the like. A third patient, whose case is quoted below, never suffered from asthma, although the exciting cause was present, until the London air-raids began. A fourth, also quoted, follows an occupation in which work is light at the beginning of the week, but accumulates towards the end, each day being heavier than the preceding; in his bad periods the attacks were always more severe towards the end of the week. In such a case the use of sedatives is clearly indicated, and this man experienced definite improvement after taking bromides at night.

Sedative drugs and re-education should therefore be employed as required where the centre is at fault and under imperfect control.

(2) *Mucous membranes outside the respiratory tract.*—The following case is an instance of asthma largely of intestinal origin:—

CASE 1.—W. M., aged 33. Has suffered from a tapeworm for the last five years. Two years ago, during air-raids, she suffered from bronchitis as a result of going out not fully clad; the bronchitis was associated with paroxysmal dyspnœa. Has an established cough, with nocturnal dyspnœa, cannot lie flat, and never sleeps the night through. She states that the dyspnœa was always worst during air-raid periods, and was always severe after a heavy meal taken at night. There is bony obstruction in the nose: it is not complete, but the passage is imperfect; the palate is narrow, though not extremely so. The accessory muscles of respiration were at work, but there were no other physical signs of disease. She was admitted to Westminster Hospital. In the absence of any bronchitis of severity it was assumed that the asthma as at present existing was due to intestinal irritation, and the usual anthelmintic treatment was given, with evacuation of many segments of a tapeworm, but, unfortunately, the head was not passed. The result has been a complete relief of the asthma; the patient can lie flat in bed and sleeps the night through.

This patient is a typical instance of spasmodic dyspnœa kept up by irritation outside the respiratory tract. She has a narrow palate, a condition frequently associated with epilepsy, and nervous instability in general; it was a common experience at the war that persons of this type stood war-strain very badly; an irritable respiratory centre is therefore not surprising in such a case. It was found that the nervous strain of the air-raids precipitated the attacks as soon as she suffered from bronchitis. Added to this, the associated narrow base of the skull produces narrowing of the bony passages of the nose, and obstruction to breathing, in itself a source of peripheral irritation, and, finally, the gross irritation of the tapeworm kept the attacks going. The removal of the latter has stopped the asthma; if the worm recurs the attacks will probably recur likewise. If they recur independently the proper procedure will be operative treatment of the nose. This was suggested to a surgical colleague for immediate action, but he did regard it as indicated.

(3) *Surgical conditions of the respiratory tract.*—This patient (Case 2) had very definite abnormalities of the nose and throat. He was seen shortly before the war, and surgical treatment was undertaken with some immediate benefit. He is, however, subject to such remarkable variations in condition

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[2] Brit. Med. Jour., Oct. 9th, 1909.

according to the locality in which he is living, that no weight can be attached to the apparent results of treatment. It was clearly correct practice to have his respiratory abnormalities surgically treated in view of his respiratory symptoms, but the whole history is stated as a warning against hasty inferences.

CASE 2.—D. A., aged 18 when first seen. Asthma of three years' duration. Sudden onset with a "cold," went to play tennis, and could not do so owing to dyspnœa. Attacks are chiefly nocturnal; in an attack simply cannot get breath; some cough, but no expectoration. Patient is extremely susceptible to locality, being free at the sea and on high ground, but much more liable when near any quantity of fresh water, such as lakes or rivers. On examination, some constant dyspnœa with over-action of the scalenes was found, but no physical signs in the lungs; there was, however, a good deal of abnormality in the nose and throat, septic tonsils, adenoids, and enlarged middle turbinal bones. This condition was treated surgically, and bad asthma followed for the first few days. Examined about a fortnight later the breathing was found much improved, and the patient remained free for some months.

In reply to a request for further information the patient very kindly supplied the following:—

October, 1913.—Operation throat and nose in Middlesex.

November, 1913.—Went to Liverpool, and was there till November, 1915. Fairly well, and suffered very slightly. Could play cricket and tennis.

September, 1914.—Had severe attack at Carnarvon for about 48 hours. During autumn not too well, and advised not to join the army.

January, 1915.—Joined army (saying nothing about asthma). Trained first outside Liverpool. Quite well.

April.—Went to Conway (N. Wales). Very well. Weighed 12 st. stripped. (I only weigh 11 st. in clothes now.) Went up Conway mountains, &c.

November.—Went to France. Quite all right. Never suffered in the trenches even when waist-deep in water. Could always sleep. No exertion ever brought on an attack.

July, 1916.—Got mixed up with gas shells (tear gas) and swallowed a good deal. About ten days after started very severe attack lasting five days. Went to hospital and came to England. Sent to Manchester, and after two weeks convalescent home sent on leave. No treatment apart from usual medicine.

August.—On leave. Went to Norfolk and had bad attack. Went to West Kirby, Cheshire. Had severe attacks biweekly. Private doctor there first used adrenalin chloride. Very good results, but only lasted about 8–10 hours.

September.—Had medical board at Hounslow (very bad at the time), more leave. Severe attacks kept on, and had adrenalin fairly frequently.

October.—Had medical board and asked to go back to duty. Went to Hull. Within a fortnight had another very severe attack. Sent into Hull Infirmary. Out in ten days (usual medicine) and went on leave.

November.—Slightly better while on leave, but I couldn't stop in Middlesex; always made me bad. Went back to Hull and at once ill again with the worst attack ever experienced. Sent into infirmary again.

December.—Came out of infirmary and passed fit for general service at once. Finally, I was allowed leave pending overseas instructions, [illegible] I couldn't stand Hull.

January, 1917.—Went overseas. Landed at Boulogne feeling bad. Went up to Etaples feeling worse. After 24 hours there I was sent to hospital again.

February.—After three weeks in hospital I came back to England and went to hospital in London.

March.—Sent into convalescent home at Bournemouth. There eight weeks. Much better, and could sleep, and weight increased.

End April.—Rejoined regiment outside Hull.

End May.—Went overseas again.

End July.—Had very severe attack while outside Nieuport with my regiment. Sent to hospital and then to convalescent home at Dieppe.

August.—Transferred to Flying Corps. Base medical board kept me at Etaples till orders came through. During that time I was frequently quite bad.

Beginning November.—Came home to England for R.F.C., and was passed by Hampstead medical board as fit for pilot. I had to argue with them for a long time as I admitted having asthma.

January, 1918.—Started flying. Fairly well. Obtained certificate, &c.

May to September.—Instructing near Cambridge. Frequently very bad, but never went sick; kept going somehow. Used adrenalin. On occasions I have only got to the aerodrome (400 yards from mess) after making three halts on the way, and then had hardly enough strength to climb into the aeroplane. Felt better up in the air, but, of course, I was sitting down and keeping still. I always considered being in the air made breathing much easier.

October.—Went to Norfolk. One very bad attack again.

November-December.—Trotting the country; fairly well.

January-March, 1919.—At Hythe. Much better. Hardly any sign.

April.—Demobilised. Still keeping well. Stayed down near Dover several times and felt well.

April-December.—Bristol. To start with I was much better and did some rowing during the summer, and actually raced in a regatta. In September I had some attacks. In end October, in Middlesex, I had a very severe attack again. Much better now. Middlesex never suits me, and I'm always ill there. I never started asthma till I came there. I consider London and the south-east coast (Margate, Dover, &c.) as the places I have felt really well in. There is no doubt that the gas shells made all the difference to me, as for nine months in France prior to July, 1916, I was very well and fully capable of doing duty with an infantry regiment. Flying seemed to do me good. I've been up to 13,500 ft. and felt quite all right. I don't think my operation was much benefit, nor was cauterising. I consider I'm much better now than I was in 1916, 1917, and 1918, and am hoping I am gradually leaving it behind.

4. *Inflammation of the respiratory mucous membrane.*

CASE 3.—W. H., seen in 1913. Increasing asthma for ten years; attacks are much affected by food and patient has to live very plainly. There is some bony obstruction in the nose, which was once cauterised with benefit lasting about six months. No abnormality was detected in the chest. It was decided to try the effect of inoculation, and a streptococcus and coliform bacillus were isolated from the sputum and employed. This patient suffered much more in periods of mental stress: the heavier his day's work the more liable he was to attacks. He was accordingly treated with bromides, to be taken at night when overworked, with a good deal of benefit. Further, there was some difficulty in bringing up sputum, which was benefited by lemonade taken at bedtime, the idea being that any substance which decreases the coagulability of the blood likewise decreases the viscidity of all discharges, and thus makes these more readily expelled. This patient remained under treatment for about nine months, having injections every week for about two months, the interval being gradually extended to a month. The number of attacks recorded in succeeding weeks were as follows after treatment was begun for the first three months:—

October—	1st wk.,	2 attacks.	November—	3rd wk.,	0 attack.
,,	2nd ,,	2 ,,	,,	4th ,,	0 ,,
,,	3rd ,,	7 ,,	December—	1st ,,	1 ,,
,,	4th ,,	1 attack.	,,	2nd ,,	1 ,,
November—	1st ,,	3 attacks.	,,	3rd ,,	1 ,,
,,	2nd ,,	3 ,,	,,	4th ,,	1 ,,

January, February, March, April, May, June, no attacks; July, 15 attacks.

During this time "tightness" and wheezing in varying degrees used to occur, but stopped short of what the patient calls an "attack." This July relapse occurred just before the outbreak of war, and the patient was not seen. Treatment was, however, continued by Dr. Braxton Hicks, and in 1918 he wrote to the following effect. There was some return of asthma in the summers of 1916 and 1917, when conditions of work were particularly trying, but these were cut short by resumption of inoculations, which he forthwith took quarterly. "I have had no bronchitis, not a common cold even, for three years or more." He wrote again, on a request for a report, in October, 1919:—

"There have been several spells of six and nine months of complete freedom; the old tightness has lessened. For the last three years I have been able to do a lot of cycling and some rowing ...... neither of which I could do comfortably before. ...... This year I had a fortnight by the sea with no symptoms whatever of asthma, although sea air was always bad for me before, and I swam again with no ill-effects. ...... Since my return there has been some asthma, not much, but sufficient to show that I am not entirely free."

This case appears to be one in which the irritable centre is clearly present, the irritability being increased by nervous stress. The most important peripheral condition is the bronchitis and when that is kept in abeyance by suitable immunisation the patient is free; he is fortunate in that his infecting organisms have been easily isolated and he has responded well. The immediate response to a few very small doses of vaccine, quite insufficient to cure an established bronchitis, make me regard his case as one in which the organisms produce a special toxin which precipitates the paroxysms as does the pollen in hay fever.

Conclusion.

In the treatment of asthma, therefore, one has to consider an irritable centre, hysterical influence of that centre, infections of the bronchi and parts of the lungs below them, more especially with specific bacteria whose toxins induce the paroxysms, abnormalities of the respiratory tract superior to the bronchi, and irritation of viscera outside the respiratory tract altogether.

For the centre, the use of sedatives, and the usual psychical methods applicable to hysteria must be employed as required. For the nose and throat surgical methods are generally needed, and appropriate treatment must be given to other visceral disturbances.

As to the respiratory tract proper, bronchitis must be treated in some way or other. If patients can afford to be sent to the high Alps, to the Sahara, or for winter cruises in the Mediterranean, well and good. If they are less fortunate and have to earn their livings under unfavourable conditions, some definite therapeutic attempt must be made to deal with the condition. It is a bacterial infection, and in all recovery from such infections the natural capacity of the body to elaborate antibodies is required, for which the only therapeutic measure we possess is treatment by appropriate vaccines; finally, if the hypothesis as to the specific character of certain bacterial toxins in the inducement of asthma is correct, that cause also can frequently be combated by the employment of vaccines.

It is submitted that this constitutes a scheme for the treatment of the asthmatic state on rational lines.

NOTES OF A SERIES OF 103 CASES OF

COMPOUND (GUNSHOT) FRACTURES OF THE FEMUR

TREATED AT A GENERAL HOSPITAL IN FRANCE.

BY PHILIP TURNER, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON, GUY'S HOSPITAL.

GUNSHOT fractures of the femur, the gradual evolution of their treatment, and the great improvement in the final results, form one of the most interesting chapters of military surgery during the recent war. The extremely interesting book by Lieutenant-Colonel M. G. Pearson and Captain J. Drummond on "Fractured Femurs: their Treatment by Calliper-Extension" gives an admirable account of the later phases of the femur problem, and it was after reading this that I thought that a brief account of a series of fractured femurs treated at an earlier date at a general hospital in France might be of interest. Indeed, it is only by considering series of statistics from Casualty Clearing Stations, general hospitals abroad, and home hospitals at different periods of the war that a true idea of the improvements brought about can be realised. Statistics of end-results alone may give a false impression unless there is also some information as to the mortality and the amputation-rate before the end-results are attained. On this subject Colonel Pearson and Captain Drummond throw some light, for they are able to tell us that even in 1918 the total mortality in field ambulances and Casualty Clearing Stations was about 20 per cent., and that, in spite of the short stay of these cases in hospitals in France for the last four or five months of the war, the mortality at all hospitals on the lines of communication taken together was 10·8 per cent. and the amputation-rate 10·2 per cent. It would be interesting to know the mortality and the amputation-rate at casualty clearing stations and at home hospitals for this same period.[1]

In the evolution of the treatment of fractured femurs three periods may be recognised. In the first, which occupied about the first year of the war, the treatment was very much on the old lines, but observations were being made, facts recorded, and means for meeting septic and other complications were being sought for.

In the second period, which extended from the summer of 1915 to about the beginning of 1918, new and improved methods of treating both the wounds and the fractures were being devised and perfected. The Thomas splint became the standard apparatus for treating these fractures; the suspension method was devised by Major M. Sinclair; towards the end the calliper method of procuring extension was introduced, as well as many other contrivances for overcoming the septic infection of the wounds, for improving the position of the fractures, and for obtaining in the end a good functional result. I particularly wish to emphasise the work done during this period, for there is a tendency for it to be overlooked. As a matter of fact, I believe that practically all the methods which gave such greatly improved results during 1918 were really devised during this second period.

The third period commenced about February, 1918, and was characterised by the provision of a specially equipped femur hospital for each area in France, and later by similar hospitals at home, where the developments and improvements of the preceding period were systematically and thoroughly carried out with such excellent results.

Description of Cases.

The series of cases under present consideration, amounting to 103, were treated in No. 3 General Hospital between July 1st and Dec. 31st, 1917; they were originally collected for the purpose of providing information to the authorities, with reference especially to mortality and amputation-rates. The cases were consecutive and include all cases of complete fracture with solution of continuity, from the neck of the bone to the condyles. In many cases there were other wounds as well, but all are included in the series. Cases where amputation had been performed before admission are omitted. Cases of partial fracture or where metal fragments were embedded in the bone without complete fracture are not included; wounds of the knee-joint with fracture of a portion of a condyle are also not included. It will be noticed that this series comes into the second, or intermediate, of the three periods, before the establishment of special femur hospitals, when these cases were treated at any L. of C. hospital to which they happened to be sent, and before special appliances were generally available. The patients practically all came from the Ypres district, which accounts for the exceptionally septic character of the wounds; most of them were wounded during the attack on the Paschendaele ridge in the autumn of 1917. Of the 103 cases I have fairly full notes of about 30, brief notes with X ray tracings of another 35, while of the remainder I have simply records of the nature of the injury, the duration of their stay in hospital, and their ultimate disposal.

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[1] Since the above was written an address by Sir Anthony Bowlby on Gunshot Fractures of the Femur has been published in the British Medical Joural, Jan. 3rd, 1920, p. 1. This gives much new information as regards amputation-rates and mortality at casualty clearing stations, general hospitals, and home hospitals.

1. *Treatment Before and Condition on Admission.*

As a general rule the men had been wounded two or three days before admission. A few had been wounded on the previous day, while in others the interval was a few days longer. The latter had either been kept for a few days at the C.C.S., or had had a long period of "lying-out." Generally speaking, at the clearing station the wounds were excised and drainage provided, with removal of loose fragments of bone, and sometimes of the missile, the patients being then at the earliest opportunity sent on to a general hospital. With one or two exceptions the limb was put up from the first on a Thomas splint.

In all the 103 cases the wounds were septic, and in most of them grossly so. There were three cases of massive gas gangrene and a good many cases of local gas cellulitis which proved amenable to treatment. In a good many the limb was so swollen that it occupied the whole space between the side bars of the Thomas splint. Several of these I have noted as cases of "threatened gas gangrene," but, though a local gas cellulitis was present, massive gas gangrene did not develop, and the limb recovered with free incisions and drainage. The splinting of the fractures on arrival was nearly always unsatisfactory. The extension bands, which had been glued to the side of the leg and tied to the end of the splint, were almost invariably slack, so that there was no extension, and the ring of the splint was often an inch or more below the tuberosity of the ischium. Under these circumstances the splint acted rather as a sort of tray on which the injured limb rested. The expression "no extension, position bad," occurs again and again in those cases of which I have full notes. I have no doubt that the extension was satisfactory when the patients left the C.C.S., and that subsequent stretching of the bands, combined with the unavoidable disturbance of the splint during transport, was responsible for the unsatisfactory condition on arrival. Various methods of dressing had been employed, but there was very little to choose between them, except that those in which the Carrel-Dakin method had been employed were rather worse on account of the tendency to provide insufficient drainage.

2. *Method of Treatment.*

As soon as possible after admission an X ray examination was made with a view to ascertaining the nature and position of the fracture and the presence of any metal fragment. As a rule, no X ray examination had been made at the C.C.S. owing either to the absence of the apparatus or, more often, to the pressure of work. The result was that in many cases, though the wound had been excised and drainage provided, the metal fragment had been left in situ. Metal fragments, most of them removable, are present in 24 out of 55 tracings of X ray plates. As soon as this examination had been made an anæsthetic was given, the wound explored, any loose fragments of bone removed, any retained metal fragment sought for, and freer drainage provided, if thought desirable. The splint was readjusted and extension obtained, in most cases, by means of a spring. As a rule, owing to the swelling of the limb and the condition of the wound, it was impossible at this time to get the fragments into satisfactory position, but usually, after ten days or so, swelling and sepsis had been overcome to such an extent that it was possible to adopt means for improving the position of the fracture. There is no need here to describe the particular methods employed, as this has already been done.[2]

The Thomas splint was employed as a routine apparatus, but in three cases a long Liston splint was used for a time, and in one or two an abduction frame. In all these the position of the wound prevented the satisfactory application of the Thomas. Generally the splint was used with the true "Thomas" action with counter-extension from the tuberosity of the ischium, but in a few cases the "Hodgen" was obtained by suspending the splint from an extemporised support attached to the foot of the bed. It must be remembered that at this time suspension frames, such as were afterwards fitted in the special femur hospitals, were unobtainable. To give an example of the difficulties that one was confronted with, I had for six months been trying to get some Sinclair "net beds" for treatment of these cases but without success. Officially they were unknown, and it was not until nearly a year after they had been ordered that these beds arrived. It may also be mentioned that callipers were not generally available until the spring of 1918, though this method of obtaining extension had been introduced some months earlier.

3. *Duration of Stay in Hospital: Mortality.*

All cases were kept until active sepsis had subsided, the temperature had become normal, and the danger of secondary hæmorrhage had passed. Excluding those who died and those where amputation was required, I have a record of the length of stay in hospital of 76 cases, the average being 52 days. In the great majority of cases there was fairly firm union before discharge. I have notes of four cases in which the wounds had entirely healed before transfer to home hospitals, and I know there were two others. Of the four cases one healed after primary excision of the wound and suture, one after secondary suture, and the other two by granulation. All the men when evacuated to home hospitals were still fitted with Thomas splints.

The 103 cases were made up of 15 British officers, 58 British other ranks, and 30 German prisoners of war, including two officers. The deaths were as follows: British officers, 2; British other ranks, 6; Germans, 6; total, 14 (13·59 per cent.). The higher mortality among the Germans is due to the fact that most of them had been lying out for a long time, and on this account their condition, both local and general, was very bad on admission. The above includes all deaths from whatever cause between admission to hospital and evacuation to home hospitals, a period averaging about 7½ weeks. The condition on discharge was such that there was probably little or no subsequent mortality.

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[2] Gunshot Fractures of the Femur, Some Methods of Overcoming Serious Displacements THE LANCET vol. ii., 1918, p. 74.

The cause of death in each case was as follows :—

1. Capt. —. Also injury to pelvis and rectum. Toxæmia. 2. Lieut. —. Septicæmia. 3. Pte. —. Also wounds of pelvis and testicle. Toxæmia. 4. Pte. —. Also fracture of the tibia and fibula of the other leg and fracture of the humerus. Secondary hæmorrhage from wound of the arm followed later by secondary hæmorrhage from leg. Probably septicæmia. 5. Pte. —. Gas gangrene. 6. Pte. —. Gas gangrene. 7. —. Secondary hæmorrhage. 8. Pte. —. Also G.S.W. buttock and abdomen opening bladder. Secondary hæmorrhage. 9. Lieut. von —. Septicæmia. Nephritis. 10. Pte. —. Also injury to pelvis. Gas gangrene. 11. Pte. —. Septicæmia. 12. Pte. —. Secondary hæmorrhage. 13. Pte. —. Streptococcal septicæmia. 14. Pte. —. Secondary hæmorrhage.

It is possible to compare these figures with the mortality at an earlier date, since there were admitted to the same hospital, between March 1st and Dec. 31st, 1915—that is, at the end of the first and at the beginning of the second of the three periods—54 cases of fracture of the femur with 8 deaths (14·88 per cent.). As the greater number of those were treated before I joined this hospital I can give no details of this series, but I know that the stay in hospital was often only a few days, and that the men arrived on long Liston splints, and were usually sent away on abduction frames, though in some of the later cases the Thomas splint was employed. Although the mortality appears to be only slightly higher than it was some two years later, there was, owing to the short period the patients were kept in hospital in France, a very high mortality and amputation rate in home hospitals. In January, 1916, the Medical Research Committee issued a Memorandum which threw light on this by recording the late results of two series of cases treated in home hospitals during 1915. The first series consisted of 96 cases, in 6 of which amputation had been performed in France. Of the remaining 90 cases, 13 were amputated after arrival in England. Five cases died after amputation, and 8 other cases terminated fatally, giving a mortality of 13 in 90 cases (14·4 per cent.). Of the second series of 105 cases, 16 required amputation after arrival in England, of which 7 died; 4 also died without amputation, giving 11 deaths in 105 cases (10·5 per cent.). A consideration of these figures shows the great improvement effected during the second of our two periods.

Amputation Rate.

This varied considerably at different hospitals, and in some was, I believe, for a time as high as 25 per cent. Conservative methods were employed as far as possible in all the cases of the present series, and amputation was performed only in 5 cases, of which 1 died. The following were the reasons for amputation :—

1. Pte. —. General condition on admission very bad. Wound very septic. Recovery. 2. Gnr. —. Amputation for secondary hæmorrhage. Died. 3. Pte. —. Wound extremely septic. Toxæmia. Recovery. 4. Pte. —. Amputation immediately after admission for severity of injury and sepsis. Recovery. 5. Pte. —. For non-union and poor general condition. This patient had a severe fracture of the lower third of the femur with great loss of soft parts. Though septic at first the wound cleaned up well and the fracture was got into very good position. He was kept in hospital over six months and at the end of this time there was no attempt at union, and the wound of soft parts had become stationary. As his general condition was poor and all power of repair seemed to have been lost, the leg was amputated. He subsequently did well.

The last case was the only one kept for anything approaching so long a period, and, with the complete absence of reaction, I feel sure that the fracture would never have united.

Shortening.

Owing to the difficulty in accurately measuring the length of a limb on a Thomas splint I kept no complete record of the amount of shortening on discharge. Colonel Sir William Thorburn, however, carefully measured a number of these cases, and in 23 consecutive fractures found an average shortening of 2·4 cm. (1 inch = 2·54 cm.). This probably gives a fair idea of the shortening in the whole series, as the cases measured were in no way selected, but included many very severe as well as more favourable fractures.

The estimation of the amount of shortening is not without difficulty, and the measurements by various observers of the same cases often show discrepancies. A series of measurements by an independent observer in a large number of cases can, however, be relied upon to give an approximately accurate result. The difficulty in the case of fractures of the femur is chiefly that the measurements taken are not between subcutaneous bony landmarks of the femur itself, but between subcutaneous portions of other bones the relation of which to the femur is variable. The usual method is to measure the distance between the anterior superior spine of the ilium and the tip of the internal malleolus of the tibia. It is obvious that in this method the length will vary according to the position of the hip and knee-joints. Even if the limbs be placed in apparently the same relative positions there may be some tilting of the pelvis which alters the position of the two hip-joints, and this is difficult to eliminate when the injured limb is on a Thomas splint, and partly concealed by bandages and dressings. Another method is to measure from the anterior superior spine to the top of the patella. The same objection as to the possibility of tilting of the pelvis arises here, and in addition contraction of the quadriceps may raise the patella quite half an inch.

In later cases I attempted to overcome these objections by measuring from the top of the great trochanter above, to the base of the head of the fibula below, since there is, unfortunately, no definite bony tubercle on the subcutaneous surface of the external condyle. The top of the great trochanter can always be identified, and forms a satisfactory landmark at the upper end of the bone. The head of the fibula is also easily identified; a prominent tubercle at its base forms a better landmark for measurements than the tip. Provided that the points are carefully identified, and are marked on the skin with a blue pencil, and that the measurements are taken with a rigid measure fitted with a sliding indicator, I believe that this method gives more reliable results than the others. It is, of course, only applicable when the fracture is below the great trochanter. To test the possible extent of the variations in different positions I have made a series of measurements of normal legs with the hip and knee-joints in various degrees of flexion, abduction, and adduction.

In measurements from the trochanter to the head of the fibula the position of flexion of the knee-joint is the only one which causes serious variation, but this position is both easily recognised and readily corrected. It might be thought that movements of the hip-joint would have no effect, but one often finds that the inward and outward swing of the trochanter in complete abduction and adduction respectively gives a trifling variation, usually slightly longer than when the hip is straight. These variations are, however, trivial when compared with the measurements obtained by the other methods.

The following table shows the variations in the measurements (in inches) of a normal limb, by the various methods, in different positions of the hip and knee.

—	Ant. sup. spine to int. mall.	Ant. sup. spine to patella.	Great trochanter to head of fibula.
Leg straight	$33\frac{3}{8}$	$16\frac{3}{4}$	18
Hip flexed 20°	$32\frac{3}{4}$	$15\frac{7}{8}$	18
Flexion of hip and knee 20°	33	$16\frac{1}{4}$	$17\frac{3}{4}$
Hip fully abducted ...	$32\frac{1}{8}$	$15\frac{1}{4}$	$18\frac{1}{8}$
Hip fully adducted ...	34	$16\frac{5}{8}$	18
Internal rotation of hip	$33\frac{5}{8}$	$16\frac{7}{8}$	18
External rotation of hip	$33\frac{1}{2}$	$16\frac{5}{8}$	18

I have to thank Colonel Sir William Thorburn for his kindness in reading through and criticising the present paper.

TREATMENT OF
A CASE OF NARCOLEPSY.

BY CHARLES S. MYERS, M.D., SC.D. CANTAB., F.R.S.,

SOMETIME CONSULTING PSYCHOLOGIST, BRITISH EXPEDITIONARY FORCE.

FOR various reasons I should not have thought of publishing this case of functional "sleeping attacks" had it not been for the recent correspondence (THE LANCET, Dec. 27th, 1919, and four following weeks) on the drastic treatment of a similar case recorded by Dr. Hildred Carlill (THE LANCET, Dec. 20th, 1919). I did not hesitate to describe his recourse to trephining as "absolutely indefensible" in the light of modern psychotherapy. Dr. Carlill, in his reply, not unnaturally complained of my strong language, and accused me of scant courtesy, insisting on the purity of his motives and asking for an "outline" of some "alternative treatment." I used strong language only because such obsolete and perilous treatment demanded it, but I had no intention to be discourteous nor to throw doubt on the excellence of Dr. Carlill's motives. An alternative treatment I offer here.

Description of Case.

This patient had served as a subaltern in the Royal Air Force, from which he had been recently discharged before he came to me, as suffering from "minor epilepsy." The "sleeping fits," he said, had begun in 1918 during convalescence from malaria, and he attributed them to the large doses of quinine (180 gr. in two days) which he was then given for his cure. These "fits," he wrote me, "were at first of short duration, gradually becoming longer and more frequent as time went on. There were also periods when my mind was a blank, but these periods and the fits seemed to have no connexion with one another. The fits seem to be of two types: the 'conscious' type, in which, although quite aware of all that is going on around me, I suddenly lose all use of my faculties and am unable to respond in any shape or form; and the 'unconscious' type, in which the fits are usually more violent and sometimes last many hours. In the latter type, although I have not been aware of it myself, I have at times given way to what appeared to be terror, and I have spoken in a strange language, believed to be Malay, which I understand slightly. These fits, whether conscious or unconscious, have invariably taken place when I am either sitting or lying down, often during conversation or in the performance of some act, never when standing up. There has never been any warning sign save occasionally a tendency for my gaze to fix on some small object in the room. After the attack I feel slightly dazed, as if I had been in a deep, heavy sleep."

When, in the course of a brief visit to his neighbourhood, I was asked to see the patient, he had been for some weeks under the observation of a well-known expert in psychotherapy, who, however, in the course of three or four interviews, had elicited little or nothing that seemed likely to throw light on the causation of the fits. The patient was obviously of an extremely nervous disposition, and at the time of my visit was much worried over financial and domestic troubles. He seemed an honest and capable young fellow. During the war he had had several exciting experiences, one of which is worth mentioning here for its connexion with the subsequent results of mental exploration.[1]

He was on a ship off the Azores, when he heard a cry in the water. Rescue proved impossible, and later "No. 3 greaser"—a Chinaman—was found to be missing from the crew. The patient discovered that the Chinaman must have been bound in sacking, secured by a rope, and thrown overboard; also that the victim had been winning large sums of money by gambling with his compatriots. The patient believed that the latter suspected him of having evidence which would incriminate them of the murder.

The patient also confessed to me that he had always been afraid of the dark, and that he was still afraid of it. Just before I saw him, he had had two "sleeping fits" of the unconscious type within two or three days, and it had been observed that both these fits were ushered in by his assuming a peculiar attitude of the arms, the left arm and fingers being outstretched in front of the body, the right arm being flexed at the elbow and kept close to the side with the fist firmly clenched.

Treatment by Exploration.

I resolved at once to make use of this observation. I said to the patient,

"Now I want you to compose yourself, and to get into a comfortable dreamy state. When you are in this state of reverie I am going to put your arms in a certain position, and I shall want you to tell me what comes into your head. Never mind how absurd or inconsequent it may seem, you must tell me at once what ideas occur to you."

The patient had not been told of the already described attitude which had marked the onset of at least the last two fits. When I placed his arms in the position described he at once gave me the following information in a dreamy unemotional manner:—

"Out shooting. After a small bird or animal. Came face to face with an orang utan. Within two or three yards of it. Shot it dead. Before it died, it crushed up some big sticks. I went up to it thinking it was dead. It made a grab at me."

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[1] I use the word "exploration" in this paper as offering a truer description of what is generally termed "analysis," and as being free from the implications of the various psycho-analytic schools.

On being further questioned, he said that the incident had occurred in Borneo, that he had never thought or spoken of it since until that moment, and that no other European was with him at the time. He could not recall the part of Borneo where he met the orang, nor how it was that he was away from other Europeans, nor what natives, if any, he had with him.

I felt that there was more in this incident than I could elicit from the patient. Accordingly, as time pressed, I sat him in a more comfortable chair, telling him to fix his gaze on my finger and at the same time suggesting to him that he would become more and more drowsy. In a few seconds he suddenly passed into a sleep so deep that I realised that he was in one of his "sleeping fits." I was quite alone with him and was somewhat disturbed by the recollection that I had been informed that he was apt to offer violence if attempts were made forcibly to rouse him from such fits. I found that loud noises failed to produce any effect. I thereupon tried strong persuasive efforts and soon succeeded in inducing a condition in which he would sleepily reply to my questions. I extracted piecemeal the following information, with considerable trouble in overcoming obvious resistance.

> "I was near the M—— River in Borneo, out shooting deer. I turned a corner and found myself face to face with an orang. I don't know who was the more frightened, he or I. I tried to use my rifle, but I was too close to do so. With great difficulty I got out my automatic pistol and shot the orang. He fell down. I went to feel his face. It was such an odd, hairy face. He made a grab at me. I jumped to one side, to the left. He made another grab at me, half sitting up. He would have got me if I had been wearing trousers instead of breeches and puttees. The orang then clawed down some thick branches and started to break them up. It made me feel horribly sick. I shot him again through the forehead, this time dead. I returned to the hut very sick and giddy. I tried to tell the natives in the hut all about it, and I wanted them to go back and to bring in the dead orang. But I did'nt know enough of their language and could'nt make them understand."

I suggested to the patient that he would wake with full knowledge of all that he had told me. But before rousing him I determined to see if I could discover the origin of his fears of darkness. His memory at once turned to a night when he awoke in the dark terrified at finding his favourite gollywog close beside him. He was then about four years old, and he recalled the entry of his elder sister into his room to comfort him and to stop his cries.

On waking from hypnosis, he re-told me all that I had learnt from him. I explained to him that he had been to sleep and had dreamed and told me of it while asleep. During his account I now put his arms in the position already described, and he at once realised that that was his attitude when, confronted at close quarters with the orang, he tried to get at his automatic pistol. He laid special stress now on the cry of the dying animal. "I was horrified: it was all so human, like the cry of a man." He gave me this account without emotion throughout, but with obvious interest and willingness—in marked contrast to the dreamy tone of the sentences I had wrung from him under strong persuasion during hypnosis.

I asked him why he had never thought or spoken of the orang incident since the day of its occurrence, but he could not give me any explanation. I asked him whether he felt at all differently since he had told me of it. He replied that it seemed as if a great load were off his mind. Before he left me to bicycle home (a distance of four miles) he told me of two other experiences—his fear of a face at the window, and his inability to read two stories in "Sherlock Holmes."

A Second Investigation.

The latter I have had no opportunity of pursuing, but the former was investigated by me on the following day, when he paid me a second visit. My first question was as to how he felt, because the improvement in his general appearance and demeanour was so obvious. He replied that he arrived home on the previous evening feeling extraordinarily vigorous in mind and body. His wife at once noticed his improved spirits. He lifted her from the floor—a feat he had never before attempted—and he felt unusually happy. I was to-day informed that when a sudden noise happened to occur in a room in which he was he would often look round suddenly at the window. He could give no explanation of this beyond faintly associating the face at the window with that of a Chinaman. Naturally I asked him if this Chinaman was "No. 3 greaser," but this did not seem to be the case. I decided to hypnotise him. He passed, with less readiness than on the previous day, into hypnosis, whereupon I elicited from him in the same dreamy unemotional tone as before the following story:—

> "I knew the Chinamen on board suspected me of knowing too much about the death of 'No. 3 greaser.' I feared that they meant to kill me to save their own skins—later several of them were convicted—and consequently I used to lock my cabin door at night. My cabin was on deck with a skylight roof. One night I awoke thinking I had heard a slight noise. I looked up and saw a Chinaman's face peering in through the skylight window. I raised an alarm and the face vanished."

I suggested that he should recall this on waking, but before I woke him I proceeded to investigate two other matters, of which I had been just informed. These were that on the last occasion of his attack (when he assumed the aforementioned position) he was playing with a dog, and that on the penultimate occasion he was opening a cupboard as the attack began. I therefore questioned him under hypnosis as to what he had experienced just before the last attack occurred. He described how he was playing with a dog, which to his knowledge disliked being teased, and that he pulled its tail, whereupon it tried to bite him. "And then?" I asked. "Then I thought of the orang utan." On the occasion of the penultimate attack he suddenly thought, he told me, of his father, over whose ill-health he was greatly worried. I regret that I did not try to ascertain the relation of this thought to the orang's death. On waking he re-told me all that I had elicited from him, and he informed me that he had never thought or spoken of the cabin incident from the time of its occurrence to that day. Of course, he had not been previously aware of the association of the attack with the thought of the orang.

These were the only two occasions I had of treating the patient. More than 12 months have passed since then. Quite recently (Jan. 24th) he wrote me that as the result of my treatment he has felt "both mentally and physically different," and he thinks that "the number of sleeping fits since then only number four or five, all of which have been of a very mild character, and have taken place quite recently, so that they may be accounted for as due to the excess of personal worry to which I have of late been subjected." These worries were, as before, of a financial and domestic character. Into them I had not the time to enter closely, nor did I attempt to explore various other sources of mental disturbance elicited during my brief inquiry.

The consequence of my two interviews with the patient is that, instead of remaining a relatively useless member of society, he has now been occupied for several months in receiving a technical training at a large engineering works; and there can be little doubt that under appropriate conditions and with fuller treatment he will make a complete recovery.

Remarks.

The interesting features of this case are :—

1. The dependence of the narcoleptic attacks on the tendency to revival of certain memories repressed from consciousness. Probably the "conscious" type of fits depended on a weaker resistance against a less forceful intrusion of such memories, and the "blank" periods occurred during "subconscious" concentration on those memories.

2. The immediacy of the amnesia. Why, we may well ask, were the memories of the orang and cabin incidents immediately lost? The answer appears to be this: The sudden strong emotion which was aroused induced a change of personality, the patient passing into a so-called "somnambulistic state," on passing out of which all recollection of the events therein occurring was repressed.

3. The striking and immediate relief obtained by the restoration of the repressed memories to full consciousness.

4. The absence of emotion during the return of the lost memories, even the resumption of the arm attitude evoking no emotion. This and numerous other cases in my experience offer no support to the view that for a successful cure emotional "abreaction" is essential during the revival of dissociated memories. I believe this view to be based on the mistaken hypothesis that what is primarily repressed in "functional" amnesia is the *emotional* component of the experience. I wish to suggest that it is the *unpleasant*, not the emotional, component that is directly repressed (or inhibited), and that the resistance against revival expresses the inability to admit the unpleasant, not the inability to face the emotion. In every-day life we forget not the emotional component of experience, which may be pleasant or unpleasant, but the unpleasant component, which may be emotional or unemotional. By bringing the same explanation to bear on the present case and on similar "functional" cases, we link up a normal with a pathological process of forgetting. Because of its concomitant unpleasant tone, it is the cognitive experience which is *repressed*, while the emotional component is merely *dissociated*, is left free to wander into other fields of cognition, and may thus or by well-known ruses manage to re-enter consciousness.

5. The value of hypnosis in immediately eliciting memories which an expert physician had been unable to revive after several sittings with the patient fully awake. A dreamy state is, as every psycho-therapeutic practitioner knows, the most effective for the process of reassociation. There is, however, no fixed line between the state of reverie desirable in every mental exploration and that of hypnosis, into which, indeed, any patient may quite spontaneously pass during such examination.

6. The value of exploration as compared with suggestion. Suggestion merely presents a motive for an action contrary to that which it sets out to cure. But it is a well-established fact of experimental psychology that one process does not destroy, but can at most merely inhibit, an antagonistic process, and that, other things being equal, the older tends to outlast the later acquired activity. Exploration, on the other hand, is a far more radical operation than suggestion, whether it be suggestion by trephining or hypnotic suggestion. Exploration is, in my opinion, the main, if not the only, ground for recourse to hypnosis. Suggestion, whether practised under hypnosis or in the waking life, is comparable rather to a stimulant or to a counter-irritant, whereas exploration attempts to probe the cause to its very origin, resting on the belief that repression and dissociation are at the root of the disorder and that redintegration alone can effect a true cure.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

GALYL IN THE TREATMENT OF POST-MALARIAL ANÆMIA.

BY J. GRAHAM FORBES, M.D., D.P.H. CANTAB.,
M.R.C.P. LOND.,
AND
R. F. LUNN, L.R.C.P. & S. EDIN., L.R.F.P.S. GLASG.

Dr. A. G. Phear, in his interesting article published in THE LANCET of Jan. 24th "On the Treatment of Malaria in Macedonia," makes reference to the use of galyl. The result of the use of galyl in the following case closely corresponds with the beneficial action claimed by Dr. Phear on the post-malarial conditions :—cachexia, anæmia, and splenic enlargement.

A private in the Royal Serbian Army, aged 27, was admitted to the —— General Hospital at Vertekop, under the care of one of us (R. F. L.), on Jan. 10th, 1918, suffering from marked anæmia, bronchitis, and pain in the chest of two months' duration. No reliable history could be obtained of any rigor or vomiting nor of his having received quinine treatment. On admission he was very anæmic, his complexion being of a pale lemon-yellow tint. Temp. 98° to 99·6° F. There were signs of bronchitis in the lungs, and he was very breathless on the slightest exertion. The spleen was definitely enlarged, but there was no evidence of enlargement of the liver, and no œdema. He was given a tonic mixture of iron, arsenic, and strychnine three times daily, and an expectorant mixture from Jan. 10th to 29th. During this period his temperature fluctuated irregularly in the daily rises from 99° to 100°, 101° and 102°, more often between 100° and 101°.

A blood film examination made on Jan. 14th failed to show any malarial parasites. The condition of the red cells gave evidence of his marked anæmia by the presence of degenerated cell forms and megalocytes. In a second examination made on the 23rd the search for parasites was equally unsuccessful, nor were any particles of hæmozoin pigment found. The following complete count was obtained :—

Reds	1,520,000	Hb	30 per cent.
Whites	3,600	Colour index	= 1·0

Differential count in percentages :—

Polymorphonuclears...	35	Small lymphocytes ...	54
Large lymphocytes ...	10	Eosinophils	1

In counting 100 leucocytes 4 nucleated red cells were seen (3 normoblasts and 1 megaloblast). There were also marked inequalities in size (anisocytosis) and chromatophilic changes of the red cells.

As the patient was evidently making no progress on the tonic mixture, quinine was administered in daily intramuscular doses of 15 gr. on Jan. 30th and 31st and Feb. 1st, and subsequently by the mouth in doses of 20 gr. each day from Feb. 2nd to the 7th. The temperature, which had remained at about 101·6°, showed no change till Feb. 2nd, when it fell to normal. On Feb. 9th, as the patient was still very anæmic, it was decided to administer galyl. Before doing so, however, a blood examination was made and yielded the following count:—

Reds	1,940,000	Hb	40 per cent.
Whites	6,000	Colour index ...	= 1·03

Differential count in percentages:—

Polymorphonuclears...	49	Transitionals...	1
Small lymphocytes ...	30	Eosinophils	2
Large lymphocytes ...	16	Myelocytes	2

In counting 100 leucocytes, 8 nucleated red cells were seen (7 normoblasts and 1 microblast). The red cells also showed poikilocytic and anisocytic forms and chromatophilic degeneration, but no parasites or pigment particles were seen.

Galyl (0·4 g.) was then given intravenously in 20 c.cm. of sterile solution of sodium bicarbonate. The temperature, which had been normal from Feb. 2nd to the 9th, rose during the course of the day to 100·2° but fell to normal on the 10th. The patient rapidly showed improvement, and on Feb. 16th a further blood examination gave evidence of the satisfactory response to treatment:—

Reds	3,250,000	Hb	65 per cent.
Whites	6,300	Colour index	= 1

Differential count in percentages:—

Polymorphonuclears...	41	Transitionals...	4·5
Small lymphocytes ...	40	Eosinophils	3
Large lymphocytes ...	11	Basophils	0·5

In counting 200 leucocytes, 1 normoblast only was seen. The red cells showed some variation in size and shape and chromatophilic changes, but no parasites or pigment particles could be found.

On Feb. 21st a second dose of 0·4 g. of galyl was administered intravenously as before.

The patient continued to show marked and rapid improvement in colour and general health. The temperature remained normal and the spleen could no longer be felt. On March 1st a blood count gave the following figures:—

Red	3,990,000	Hb	80 per cent.
Whites	7,500	Colour index ...	= 1·02

Differential count in percentages:—

Polymorphonuclears...	47	Eosinophils	7
Small lymphocytes ...	29	Basophils	3
Large lymphocytes ...	11	Myelocytes	2
Transitionals...	1		

No nucleated red cells were seen and there was much less evidence of irregularity in size and shape of the red cells.

Unfortunately this was the last blood examination made before the patient was finally discharged on April 4th, 1918, quite well, looking fat, robust, and of good colour: in fact, improved beyond all recognition.

The patient was subsequently readmitted to the hospital in the autumn, having been slightly wounded in the course of the final Serbian offensive in October, 1918. He then looked extremely well and had put on weight. There had been no recurrence of malaria and the spleen could not be felt.

In the failure to discover malarial parasites it would, perhaps, be rash to describe the anæmia in this case as a post-malarial condition; for such an assumption might well be regarded as unjustified and open to grave doubt despite the fact that quinine produced an alleviation of the febrile condition. With this reservation, however, we feel fully entitled to attribute the man's cure to the use of galyl, whether his anæmia was a post-malarial condition or not.

NOTES ON A CASE OF

PANCREATIC INSUFFICIENCY.

BY J. O. SYMES, M.D. LOND.,
PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

THIS case appears to be worth recording as it presents many interesting problems, both of physiology and pathology.

The patient, a man about 40 years of age, first came under treatment in 1888, when he suffered from renal colic and ultimately passed a calcium oxalate stone. He enjoyed fair health until 1905, when, after some attacks of gout, it was found that the urine contained sugar and a trace of albumin. The amount of sugar varied from 1 to 5 per cent, and finally in 1911 it and the albumin disappeared. During this period he again passed a stone of calcium oxalate. Early in 1911 he began to have diarrhœa with offensive stools. This continued for six months and he lost much weight. In August, 1911, when he was in a nursing home having a sebaceous cyst removed from the back, it was noticed that the stools contained oil. A skiagram of the pancreas was taken, and a calculus was clearly shown in the duct of the gland. A second and third skiagram confirmed this. A month later whilst at Eastbourne the patient was seized with an acute attack of pain in the lower part of the abdomen, with vomiting and diarrhœa. The vomiting and acute pain lasted for six hours, and he was confined to bed for several days. During the next few months the abdominal pain, diarrhœa, and fatty stools persisted, and it was decided to operate with a view to removing a pancreatic calculus.

However, the pain became less acute, and skiagrams taken in April and May, 1912, showed no trace of the calculus in the pancreatic duct. The operation was therefore abandoned, but as the patient's general health was declining, and as the stools were still frequent, large, fatty, and offensive, he went into Dr. Combe's Clinique at Lausanne. Here he derived considerable benefit, partly from the use of hydrochloric acid and pepsin after meals and partly by adopting a more farinaceous diet. By the end of the year he was passing only two motions a day, and these were free from visible oil. There was no sugar or albumin in the urine. Occasionally during his stay he suffered from attacks of acute abdominal pain.

During 1913 there were some attacks of fever of several days' duration. There was no explanation of these attacks, but they were marked by an increase in the number of stools and by the passage of large quantities of oil. Patient revisited Lausanne during 1913 and 1914, and was more especially benefited by this last visit. His weight had dropped from 15 st. 2 lb. to 12 st. 5 lb.

From this period until the time of his death five years later the patient was greatly troubled by diarrhœa, four or five motions a day, of which the odour was extremely offensive; they were clay-coloured, loose, frothy, and at times looked like pure linseed oil. They were very difficult to retain and gave rise to pain and soreness at the anus. The analysis of the fæces always showed an excessive amount of connective tissue and striated muscle, enormous quantities of fat, and increased amounts of fatty acids and soaps. He was able to get about freely, and for the next five years his weight remained unaltered.

In 1916 it was first noticed that the blood pressure was excessive (310 mm. Pachon), and no measures taken succeeded in reducing it below 250 mm. The amount of albumin in the urine increased slightly, and on one occasion there was a trace of sugar in the urine. In 1918 he passed three renal calculi (calcium oxalate). Dropsy appeared in April, 1919, and four months later, in his seventieth year, he died from cardiac failure with very extensive œdema.

This case lends support to the view that oxaluria may arise from the fermentation of carbohydrates in the digestive tract. In this instance the faulty digestion of starch was due to the insufficiency of the pancreatic secretion. The first bout of oxaluria occurred 30 years before the patient's death, and probably at this time there was commencing fibrosis of the pancreas. Seventeen years later oxaluria recurred, and with it glycosuria and albuminuria. The glycosuria was never severe, and six years later, when he was carefully dieted, it disappeared, to return only on one or two occasions when he had broken his dietary regimen. It was an alimentary glycosuria, and to the end of his life the patient preserved sufficient pancreatic substance to prevent the appearance of the signs and symptoms of diabetes.

The stone in the pancreatic duct which gave rise to the acute attack during the autumn of 1911 was possibly an oxalate stone. Apparently it ulcerated its way out of the duct into the bowel. The characteristic stools of pancreatic insufficiency were noted some months before there were symptoms of a stone in the duct. The fact that the symptoms and signs became more pronounced after the stone had disappeared was due, no doubt, to cicatrisation and gradual narrowing of the lumen of the duct, and the ever-increasing fibrosis of the pancreas.

Other points of interest are: (1) The rapid and ultimately fatal rise of blood pressure due to auto-intoxication from the bowel or to imperfectly antagonised suprarenal secretion. (2) The long-continued good nutrition and physical and mental energy shown by the patient, which indicates to how great an extent pancreatic digestion may be assisted by other organs. (3) The relief afforded to the patient by withdrawing fat from the diet and giving acid preparations by the mouth (acidol pepsin, betain chloride) after meals, the increased acidity stimulating the flow of secretin, and thus increasing both the internal and external secretions of the pancreas.

Clifton.

A CASE OF

ACUTE TOTAL INVERSION OF THE PARTURIENT UTERUS.

By H. TOWNSEND-WHITLING, M.B., B.S. DURH.,
AND
NORMAN GLOVER, M.B., B.CH. OXON.

THE following case is worthy of record, in which total inversion of the uterus occurred acutely four hours after delivery, and reduction was fortunate in achieving complete recovery.

The patient was a primipara of 28 years, who had been delivered of a male child, 7½ lb., at 11 A.M. on Dec. 22nd. Labour was normal and not excessively prolonged; presentation R.O.A. There was some feebleness of contraction of uterus afterwards, but the placenta was expelled unaided. There was only slightly excessive loss of blood. At 7 P.M., as she was still losing and complained of after-pains, the nurse in attendance got rid of an apparent intra-uterine clot by massage and compression of fundus. At 10 P.M. a catheter was passed and urine drawn off. Nothing else abnormal was noticed. Pains, however, continued from that time, becoming stronger and more expulsive in character, and at 1 A.M. one of us (N. G.) was summoned and found the whole uterus extruded from the vulva and the patient suffering from shock. Morphia gr. ¼ was given, the extruded uterus wrapped in gauze soaked in hot lysol solution, and general restoration treatment applied. At 3 A.M., on the arrival of the other partner (H. T.-W.), the entire uterus was lying outside the vulva, the placental surface of attachment being anterior and to the left. Hæmorrhage was not great, chiefly consisting of general venous oozing, and a large triangular piece of membrane could be seen spread over the uterine surface to left and inferiorly, to which two small ovoid placentæ succenturiatæ were attached. The uterine mass measured roughly 9 in. in transverse and 10 in. in vertical diameters. The patient being placed transversely across the bed and deeply anæsthetised, the uterine surface was thoroughly flushed with very hot lysol solution, and I (H. T.-W.) then stripped off the membrane with the attached placentæ succenturiatæ. Little bleeding resulted. After considerable effort the uterus was replaced inside the vagina, when severe shock occurred, and strychnine was given hypodermically. Reinversion of the uterus proved exceedingly difficult. Rupture of the vaginal walls was greatly to be feared, the vagina being already fully distended by the tumour, and the introduction of the hand still further increased the tension of the walls. Compression and manipulation of uterus backwards and upwards was useless, so the whole mass was thrust forwards and upwards into the axis of brim under deep anæsthesia. Gradually the uterus began to infold and the cup above to diminish until the latter half of its inversion occurred suddenly. Shock then, at the moment of complete reinversion, was very great. Pituitrin 0·5 c.cm. was injected and acted rapidly, and a hot intra-uterine douche of lysol was given, and the lateral and posterior fornices and vagina were packed firmly with sterilised gauze. Prophylactic injection of mixed puerperal antistreptococcic serum was given. A few hours afterwards the patient passed urine naturally. The only sequela was a temperature of 101° to 102° F. on Dec. 25th, which disappeared after the vaginal plug was removed and an intra-uterine douche given.

Remarks.

We had not before seen the third stage of acute post-partum inversion of uterus, which is stated in Eden's Midwifery to occur only once in 180,000 to 200,000 cases of child-birth. The first and second stages have both been met with and treated by me (H. T.-W.), but only after some mechanical interference with the cord still attached to an adherent placenta, or very forcible attempt at manual expulsion of placenta or clot.

In this case two factors appear to arise: (1) The overlooking of pieces of membrane with placentæ succenturiatæ attached; (2) efforts made to express a clot, doubtless resulting from a poorly contracted uterus and continued oozing from the first factor.

I should estimate this reduction as being by far the most difficult of all obstetrical manœuvres. The uterus gets rapidly swollen and enlarged, and the over-stretched vulva nips it so tightly round the false pedicle that even the replacement within the vagina is very difficult, and the want of room in the over-distended vagina greatly cramps the operator's hands. The only possible way to re-invert it, in my opinion, is to picture and follow in retrogression the pelvic axis, the slightest deviation from which produces a total block and a useless expenditure of force. Three distinct moments of shock appear. First, when the uterus is extruded from vulva; secondly, on vaginal replacement; thirdly, on the rather sudden completion of reinversion of uterus, which at the end is like the sudden expansion of a deflated india-rubber ball. Both the second and third shocks I could anticipate by touch and give warning to Dr. Glover, who most skilfully induced a very deep anæsthesia for me in the last stage.

These notes are written in the hope of helping others placed unexpectedly in a similar predicament.

Market Harborough.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

THE VALUE OF ALCOHOL AS A THERAPEUTIC AGENT.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 17th, Dr. H. H. DALE, the President, being in the chair, when a discussion was held on the Value of Alcohol as a Therapeutic Agent.

The PRESIDENT, in opening the discussion, said that he could only attempt a judicial review of the evidence as to the modes of action of alcohol which could be derived from pharmacological experiment, and left it to those who continued the discussion to make clear to what extent this evidence was applicable to the action of alcohol as seen in practical therapeutics. With regard to the form in which alcohol was administered, although other constituents might affect the rate of absorption, he was sceptical as to the importance sometimes attributed to the minute traces of ether and other constituents of wines and distilled liquors. They might affect the flavour of the spirit and to some extent its directly irritant action on mucous membranes, and thus indirectly the rate of its absorption, but he thought it had still to be proved that they did more. There seemed justification, therefore, for discussing the effects of ethyl alcohol as such rather than those of the various liquors containing it, which were generally used for its administration.

Action of Alcohol as a Food and as a Drug.

The known actions of alcohol might be divided into: (1) its action as a food; and (2) its action as a drug. It must now be regarded as beyond dispute that alcohol could be used by the body as a source of energy, and in that limited sense it could act as a food. Atwater and Benedict had shown that for a limited period as much as one-fifth of the body's total requirement of energy could be supplied in the form of alcohol. The body could oxidise considerable amounts of alcohol and thereby use it as an immediate source of energy in place of a calorific equivalent of carbohydrate or fat. This, however, did not commit us to the view that alcohol was a desirable source of energy for the body of the healthy person. Considered merely as a source of energy, alcohol had some peculiarities which might recommend it, in certain conditions, in preference to the normal non-nitrogenous elements of a diet. 1. It required no digestion. This was also true of dextrose. 2. It was very rapidly and completely absorbed. 3. It was not susceptible, as were the carbohydrates, to fermentation by yeasts and bacteria, with the formation of troublesome amounts of gas or an undesirable acidity. It would be expected, therefore, that in conditions in which the digestive secretions were deficient, in which absorption was retarded, in which bacterial decomposition was likely to be excessive and troublesome, the mere food value of alcohol should give it a place in rational therapeutics. It should be able to supply to a system temporarily unable to obtain it from normal sources the minimum of energy necessary to enable it to carry on and tide over a critical period. Alcohol was used purely as an emergency source of energy in the preliminary period of starvation which introduced the modern treatment of diabetes. It would be of great interest to know to what extent alcohol in this condition was really an essential factor in the treatment, and to what extent it merely helped to blunt the patient's sense of monotony and deprivation.

Alcohol as a Stimulant.

When alcohol is used as an item of the convalescent dietary it was not its food value but its drug properties which were being employed. Many would probably be familiar with the prolonged controversy which divided the world of pharmacology on the question as to whether alcohol had any scientific claim to its popular reputation as a stimulant. One school, headed by Binz, were concerned to find experimental support for the action of alcohol as a respiratory and circulatory stimulant, which the prevalent clinical practice suggested. Such evidence as they produced was subjected to destructive criticism by Schmiedeberg and his followers, who failed to find evidence of any action by alcohol which was not accounted for by its depressant action on the activity of the higher centres, or by its directly irritant action on mucous membranes. The school of Schmiedeberg had the better of the argument, and more recent work, using more modern methods, had produced evidence of the same general tendency. No evidence had been produced of a direct action of alcohol on the heart or on the circulation, which would be regarded as having any significance, apart from preconception due to clinical practice. A recent careful examination of the effect of alcohol on the excitability of the respiratory centre in normal men, produced no evidence of any stimulant action. Certain relatively trivial effects on the circulation could usually be detected. Immediately after a dose of alcohol had been swallowed the pulse showed a brief acceleration, but, as Professor Dixon had pointed out, this was not due to stimulation of the heart by alcohol, but a reflex effect of the mild irritation of the buccal and pharyngeal mucous membranes. It was generally agreed also that in man alcohol caused a dilatation of the skin vessels; the mechanism of this action was not clear, but it could not, in any case, be regarded as a stimulant action on the circulation. In the case of the action of alcohol on the higher brain centres, there was a consensus of opinion in favour of the view that the action was not due, as popularly supposed, to a stimulation of cerebral activity, but to a depression of the inhibitory control which the higher brain centres normally exercised.

The most important point which the discussion might help to illuminate was the apparent discrepancy between this pharmacological conclusion that alcohol was in no direction a true stimulant, and the still prevalent use of alcohol in therapeutics to remedy a depression or threatened failure of the circulation and respiration. He expected that the discussion would produce testimony from personal experience in favour of the view that alcohol had real value in certain conditions of this kind.

In considering the apparent discrepancy between experimental evidence and clinical experience it must be remembered that practically the whole of the experimental results had been obtained on normal subjects or normal organs. It might be suggested that the pathologically weakened heart or depressed respiratory centre was differently affected from those of the normal subject. He thought there was no warrant for such a suggestion, or that it was necessary to suppose that the effect of alcohol on the failing circulation or respiratory centre, if it had such action, was of this direct kind. He raised the question as to how far the good effects which alcohol might produce on the circulation and respiration were due, not to stimulation, but to weakening of excessive reflex excitability or of excessive inhibitions originating in the higher brain centres. A condition in which alcohol was habitually administered and credited with beneficial action, the syncope due to fright, pain, or excessive emotion, seemed to be one in which the heart and vaso-motor centre were subjected to severe central inhibition. If alcohol here assisted recovery, it would appear logical to suppose that it acted by weakening that excessive inhibition. Haldane's recent work seemed to point to an excessive reflex excitability of the respiratory centre as the cause of the rapid, shallow, ineffective respiration which impaired the oxygenation of the blood in the lungs. In a condition such as that seen in pneumonia, where restriction of the functional lung area, excessive excitation of the centre from the periphery, and abnormal reflex excitability of the centre itself might combine to impair the oxygenation of the blood, a sedative effect such as that of alcohol could be credited rationally with value. In so far as alcohol could assist in restoring a quiet, deep, effective respiration it ought to be of use. The blood would thus obtain the best oxygenation which the condition of the lung allowed, and the supply to a labouring heart, threatened with over-distension, of well-oxygenated blood could hardly fail to have a secondary restorative effect on the circulation. If this explanation of its action be accepted, there was no escape from the conclusion that alcohol was useless in many of the conditions in which it was still habitually employed. Among the several conditions which are probably confused under the vague title of shock it might be expected that those in which inhibitions were predominant would get some benefit from alcohol; in others in which a toxæmia causing peripheral stagnation of the blood was the predominant factor there seemed no likelihood of its having any good effect.

It would not be without value, he thought, if a protest were registered against the superstition with regard to alcohol as a sort of specific against infection, and against influenza in particular. There was no evidence in favour of its having a specific or prophylactic action against infection of any kind. Its admitted action as a superficial vaso-dilator seemed clearly to condemn its use as a preliminary to or during exposure to cold. After exposure, as an aid to the effect of heat externally applied, the same vaso-dilator action, combined with its mild narcotic effect, clearly indicated its possible usefulness.

Summary of the Position.

In summarising the position he said that we might safely credit alcohol with the power of acting as an emergency food or source of energy, as a mild sedative and narcotic, and a superficial vaso-dilator. The fact that it was the only available narcotic which at the same time had a significant food value, might be held to give it a special position. On the lines of these demonstrable actions he believed that such therapeutic action as it possessed could be explained, and on these lines he believed its inclusion in the Pharmacopœia could be defended, even in, or perhaps especially in, a country which effectively prohibited its popular consumption. It had probably a definite limited place in therapeutics, but its value had largely been discounted by the tendency to its indiscriminate and unnecessary use.

Energy Derived from Alcohol.

In the course of the discussion Dr. E. MELLANBY spoke of the value of alcohol as a food, and dealt with the question as to the amount of energy which could be supplied to the body by alcohol and the relation which alcohol bears to the other energy-producing foodstuffs. Atwater and Benedict had shown that a considerable amount of energy could be obtained from the combustion of alcohol in the body. He thought that the 25 per cent. mentioned by Dr. Dale was too low an estimate. One gramme of alcohol on combustion gave out seven calories of heat, thus comparing favourably with proteins and carbohydrates, which each yielded 4·1 calories of available energy. Practically all the alcohol was absorbed and oxidised, so that, disregarding its toxic action for the time being, it was seen that alcohol could supply a considerable quantity of energy to the body.

Dr. Mellanby then exhibited a series of curves illustrating the results of various experiments which he had carried out. The first showed the rate of entrance into and of disappearance from the blood of alcohol in the case of a dog, into the stomach of which 50 c.cm. of diluted absolute alcohol were introduced. This was completely oxidised at the end of 20 hours, or at the rate of 2·5 c.cm. of alcohol per hour, showing that 1·04 calories of heat per kilogramme body-weight per hour were supplied by the alcohol, representing 40 per cent. of the total heat lost during the period. Another curve showed the result of an experiment performed on a man weighing 70 kg., from which it could be calculated that he oxidised 10 c.cm. of alcohol per hour, the alcohol furnishing about 54 calories per hour, or, roughly speaking, 1300 calories per diem, representing about 40 per cent. of his total energy loss. From another curve it was seen that the rate of disappearance of alcohol from the blood, which almost certainly represented its rate of oxidation, did not depend, within fairly wide limits, on the amount present in the blood. In this experiment a dog received on different occasions doses of alcohol varying from 20 up to 55 c.cm. It had been shown that the depression in the respiratory quotient produced by alcohol was the same whether 30 or 45 c.cm. of alcohol were drunk, but this condition did not hold good for carbohydrates or fats. This, then, was the first great difference between alcohol and other foodstuffs—the rate of combustion was not as dependent on the amount consumed. Seeing that the man above mentioned, when at rest, oxidised 10 c.cm. of alcohol per hour, if the constant rate of oxidation held even with very low concentrations, it was only necessary to give doses of the order of 10 c.cm. per hour to such a man to get the maximum amount of energy in unit time. The smaller the dose the less the toxic action; it was thus possible to get out of alcohol the maximum amount of energy in unit time, and eliminate most of the acute effects due to its drug action.

Alcohol had no power of stimulating metabolism; in other words, it had no specific dynamic action. Although it supplied heat it did not make any more energy immediately available for the body. It simply conserved the stores of protein, fat, and carbohydrate in the body. This was another great difference between alcohol and other foodstuffs. Not only did alcohol not increase the amount of energy immediately available to the tissues, but in consequence of the heat loss following vaso-dilation of the skin vessels a fall in body temperature might follow. More especially would this be the case if the dose of alcohol was so great that it narcotised the neuro-muscular mechanism and thereby directly diminished the heat production.

Another point of difference between the oxidation of alcohol and of other energy-producing foodstuffs was seen when the effect of exercise and mechanical work was considered. Exercise only increased its rate of combustion to an extent comparable with other foodstuffs when lower concentrations were present in the body. With high concentrations in the case of dogs exercise had no apparent effect in increasing the rate of combustion. He raised the question as to whether a substance which only supplied energy and with no other favourable metabolic characters was necessarily always of value to the body. It did not appear to him quite certain that alcohol, given in such a way as to eliminate or reduce to a minimum its drug effect, would extend the life of a man dying of starvation. Taken with other food it would undoubtedly help to convert a negatively balanced diet into a positive one, thereby conserving the proteins, fats, and carbohydrates of the body; but when taken as the only source of energy, which might well happen in some diseases, it was not self-evident that existence would be prolonged by it. A starving man or animal did not die because of the lack of energy-bearing material in his body. Whether, by increasing the amount of these substances as the result of giving alcohol, life would be prolonged, was to him a matter of doubt.

Alcohol-oxygen Vapour.

Dr. W. H. WILLCOX spoke of the value of alcohol as administered in the form of alcohol-oxygen vapour, and referred to the experiments of Professor B. J. Collingwood and himself which were carried out in 1909–10. He was convinced of the value of the mixture in cases of cardiac failure, the good effect of which was not due to oxygen alone. Collingwood in 1909 gave poisonous doses of chloroform vapour to animals. The administration of oxygen and CO_2 restored the respiration, but the heart failure continued. Oxygen was then used alone after the respiration had improved, but for the cardiac failure following chloroform it was found that a mixture of alcohol and oxygen produced a marked stimulating effect, the blood pressure in many cases rapidly rising to normal. With regard to the method of administration in his own cases the oxygen, contained in a cylinder, was bubbled through absolute alcohol, and thence by tubing and a funnel to the patient. Special face-pieces had been found to be a source of discomfort to the patient.

Experiments showed that the optimal percentage of alcohol vapour was about 4 per cent. by volume, and this could be obtained by using absolute alcohol, and having the inlet tubes below the level of the alcohol.

It was found experimentally that the quicker the oxygen bubbled through the greater the percentage of alcohol in the mixture. Rectified spirit (90 per cent. alcohol) had been used, but gave off a smaller percentage of alcohol. Whisky (pre-war) and brandy gave off a still lower percentage, which was too low to be of real value. It was desirable that there should be from 3 to 5 per cent. of alcohol.

Regarding the therapeutic effects, he had not noticed any special effect on the normal person, but there was a marked beneficial effect on patients with severe cardiac failure. It was extremely valuable to tide a patient over a short period. It should be given continuously for about ten minutes or longer, then for five minutes every half hour or hour as indicated. He had used it for cases of pneumonia, pleurisy, various forms of morbus cordis, chloroform poisoning, asthma, and cardiac failure. He had also used it in cases of profound toxæmia, such as cholera and typhoid, when the patient was collapsed, with bluish colour and rapid and feeble pulse. The colour improved quickly (probably due to the oxygen), the rapid pulse was reduced by about 20 beats, and the blood pressure rose by about 30 mm. Hg. In considering the mode of action, he said that the method of administration was an important point. With inhalation the action was very rapid, as was the case with amyl nitrite in asthma. Only small doses of alcohol were given, and therefore no harmful effects on the liver or kidney were likely to result. With regard to its mode of action as a cardiac stimulant, he would suggest tentatively that (1) it minimised the inhibitory impulses from the vagus and nerve centres; (2) there was a direct stimulant effect of alcohol vapour on the heart.

A Digestive Stimulant.

Dr. R. HUTCHISON said that the therapeutic effects obtained from alcohol corresponded more closely with its pharmacological action than was usual with drugs. As regards some of its effects, there would be general agreement amongst clinicians: 1. Alcohol is undoubtedly a food, and is of special value for this purpose in diabetes and in prolonged fevers. 2. It is a digestive stimulant, and is often useful in cases of impaired appetite, gastric atony, and in convalescence. The form in which it is administered has, however, a great influence on its digestive value. It is also useful as a carminative in cases of severe flatulence. 3. Its effect in dilating superficial blood-vessels is of use in combating the effects of chill, as well as in rigors and in helping to reduce blood pressure during an attack of angina. 4. Its narcotic action is helpful in some case of insomnia, especially in old people, and in cases of delirium and restlessness in acute illness. The chief point of controversy would be as to whether alcohol could be regarded clinically as a cardiac stimulant. In cases of acute heart failure, as in syncope and fainting, its action in reflexly stimulating the heart was certainly of great use, but in his opinion there was no clear clinical evidence that it acted as a heart stimulant in cases of acute infection. On the other hand, by calming the nervous system, counteracting delirium, and promoting sleep it might benefit the heart in a case of prolonged illness indirectly, and he therefore made use of it in such circumstances, though he was guided in prescribing it rather by the state of the patient's nervous system than by the pulse. As to whether alcohol increased the patient's resistance there was considerable difference of opinion, but his own view was that there was some reason to believe that in septic infections, at least, it had some power in this direction.

Its Value in Anorexia and Vomiting.

Sir WILLIAM HALE WHITE said that therapeutically alcohol was of value as a food in certain cases of anorexia and vomiting which were met with in phthisis and cancer. It must never be given in functional anorexia and vomiting lest a habit should be formed. It was of use as a food during the starvation period of diabetes. When in acute fever, anorexia, vomiting, or indigestion were present, it was an excellent food, for it required no digestion, was easily absorbed, and had the inestimable advantage of making the patient feel comfortable and sending him to sleep. The disadvantages were that sometimes he complained of headache after it, and in a few cases its soporific effect was slight. During convalescence alcohol was of value, especially in the form of a glass of wine taken with a meal. The patient was weak and "all on edge," which meant that he was worried by peripheral stimuli which would not have affected him in good health. A glass of wine would annul these without doing appreciable harm; it would promote digestion and make the patient feel better and more comfortable. He had never known an alcohol habit formed from taking it during convalescence. The therapeutic value of the effect on the circulation was very difficult to estimate except when it was given in concentrated form in order to rouse a patient from a faint; its action was then entirely reflex from the mouth and stomach. At present little or no alcohol was given in pneumonia, but he did not think that the outlook in this disease was better or worse than it had been, nor was he convinced that it did harm or good to the circulation. Even if alcohol had a beneficial effect on the respiration, this function was unimportant in the treatment of acute fevers, for in these cases death was nearly always due to cardiac failure. He thought that the chief therapeutic value of alcohol was as a pleasant depressant peculiarly efficacious in inhibiting peripheral sensations, such as slight pain and discomfort, and by its slight cerebral depressant effect, so diminishing the trivial worries that bother the sick. As such in small doses it was useful to the convalescent, in larger doses to the patient acutely ill, making him feel more comfortable; in larger doses still it made him sleep. For these uses it had the great advantage of being easily and rapidly absorbed. There were two difficulties to surmount in a discussion of this sort—(1) it did not follow that the effect of the drug was the same in health as in disease, and its effect in disease was often very difficult to estimate; (2) no sick person took a mixture of pure alcohol and water. Perhaps the other bodies present in wines and spirits had their actions. Certainly they were believed to have, for it was considered that brandy was the best form of alcohol for diarrhœa, and that old brandy had superior therapeutic effects.

Alcohol in Diabetes.

Dr. O. LEYTON said that it was extremely difficult to draw any conclusion as to the effect of alcohol administered to cases in which it was thought that the heart would cease to work and death would ensue from that cause. At the present day we had no method of determining whether the heart was likely to stop beating, and several cases in which that termination had been feared had died from respiratory failure. In prolonged diseases, such as typhoid fever, alcohol might prove a most valuable adjunct to dextrose and other easily assimilable substances, but the tendency to administer food in short fevers was ill-advised if the patient did not crave for food, for most individuals could live upon their own tissues for many days without detriment. In diabetes it had been his custom to order alcohol as a foodstuff during the period of very meagre diet, to those patients who had been accustomed to take alcohol in the past. There seemed to be two advantages in this: first, the supply of a small amount of energy; and secondly, the patients were less irritable, pangs of hunger were more easily borne, and the patients seemed to be able to stand treatment better. The less alcohol the patient took as a luxury the better, but a large number of cases of diabetes mellitus had come under treatment in which the maximum diet which they could take represented about 20 calories per kilogramme, or rather less than half that which was thought to be necessary for the patient to be able to maintain life and energy. It was in those cases, in his opinion, that alcohol was essential.

Dr. Leyton then gave an account of a woman of about 20 years of age who had been under his observation for nearly three years. She weighed about 5 st. 6 lb., presented an appearance of great emaciation, and was found to have a tolerance of only: carbohydrate, 20 gr.; protein, 45 gr.; and fat, 60 gr. If any one of these were increased sugar appeared in the urine. Since the diet was so meagre it seemed to him hopeless to try to find one in which sugar in the blood was normal. This diet represented about 800 calories, or less than 25 calories per kilogramme. It was very unlikely that the patient would be able to enjoy her life on this diet, and he therefore added to it slowly and gradually 2 oz. of absolute alcohol daily. Absolute alcohol was chosen because the patient intensely disliked brandy, whisky, gin, or other alcoholic beverages. The absolute alcohol was ordered to be given well diluted and to be taken with meals, for by giving it with meals it was absorbed more slowly and was less likely to produce any excitement or somnolence. During the last year or so an improvement on dilution with water had been made by incorporating the alcohol into a jelly made with agar and flavoured with citric acid, oil of lemon, and saccharin. This jelly without alcohol was, as far as he knew, of no nutritive value, but tended to satisfy hunger. From it the alcohol diffused out comparatively slowly and was slowly absorbed, so that in many ways it was an ideal method of administering it. The addition of 2 oz. of alcohol to the diet increased its value by 300 calories, so that the energy of the diet was increased to 30 calories per kilogramme, which experience had shown was sufficient to allow an individual to take exercise and gain weight extremely slowly. This patient was now able to walk six miles daily. He had come to the conclusion that alcohol was a necessity in some of the more advanced cases of diabetes mellitus, and he had on record patients who had maintained their weight whilst taking alcohol, but who had lost weight after they had stopped taking it, the diet having been maintained constant in every other respect. In diabetes the metabolism was extremely unstable, and care must be taken in drawing conclusions. When a patient was on a small diet and sugar free a slight disturbance, such as inoculation with a vaccine for influenza, streptococci and pneumonia, might lead to the appearance of sugar in the urine, and any infection or even emotional disturbance might produce the same effect.

Professor W. DIXON thought that, with regard to alcohol, the question of the definition of the word "food" was academical. If other foodstuffs were spared it came to the same thing. Hamill had found that the isolated heart could oxidise alcohol, and that alcohol could be substituted to some extent for glucose in Ringer's solution. Not only was alcohol absorbed with ease from the stomach and intestines, but it facilitated the absorption of other foodstuffs given with it.

Dr. W. LANGDON BROWN said that opinions on the therapeutic value of alcohol had been very much governed by tradition in the past, and he thought the discussion that afternoon proved that tradition still held sway, so that it was difficult for clinicians always to give definite ground for the faith that was in them on this subject. There were four types of cases where he felt alcohol could be of therapeutic service: 1. In the fasting treatment of diabetes, where energy could be obtained from alcohol and the calorie value raised to a more reasonable figure. 2. Dilute alcohol was found by Bickel to be one of the direct chemical stimulants of gastric juice, the others being meat extracts, condiments, and aerated waters. 3. He believed, with the President, that alcohol was often very useful in removing nervous inhibition, and thus contributed to the patient's comfort. 4. Like Dr. Willcox, he thought that the administration of oxygen over brandy contributed to the recovery of some cases of pneumonia. But the fallacy inherent in all attempts at exact estimate of therapeutic conclusions on clinical grounds was the absence of controls.

Effects in Children.

Dr. M. ESTHER HARDING said that children were valuable in estimating the effects of alcohol, because the æsthetic effects might be entirely discounted. In the case of children the uses of the drug fell under the same headings as in adults. 1. In respiratory embarrassment, especially the rapid, shallow, inefficient breathing of broncho-pneumonia, alcohol quieted the respiration and so made it more efficient. It was true that the indication for the use of alcohol was commencing failure of the right heart, but the effect of the drug was not to flog the already over-burdened heart, but to relieve it of some of its intolerable burden by slowing the respiration and improving the oxygenation of the blood. 2. Alcohol was, in her opinion, the most valuable sedative and hypnotic drug we possessed for infants and young children. 3. As a food in cases where no ordinary diet could be taken: (*a*) in milk intolerance of marasmic infants alcohol would sometimes tide a patient over a few days till milk or whey tolerance could be re-established; (*b*) in the persistent late vomiting which killed so many patients after severe diphtheria. She had kept a child alive on more than one occasion under such circumstances on saline, brandy, and sugar, given by the stomach, for three weeks. A word of warning on the danger of the persistent use of alcohol in young children was hardly needed, but it was wise to remember that small doses of spirit given to an infant over a period of weeks might easily result in damage to the liver.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 4th, under the presidency of Mr. W. T. HOLMES SPICER.

Mr. G. WINFIELD ROLL showed a patient, aged 27, with New-formed Vessels on the Iris, the condition having existed since infancy. In the right eye were a number of vessels on the front of the iris, radiating from the periphery to the margin of the pupil. The eye was blind and somewhat disorganised, and as it had recently become painful the patient was anxious to have it removed. Her good eye had two areas of coloboma in the fundus, the one below the disc looking like a congenital coloboma of the choroid. A floating band came forward to the back of the lens, but it could not be traced to its attachment. The eye was highly astigmatic.

Mr. TREACHER COLLINS's view was that it was a persistence of the fœtal vascular system, and he believed removal of the eye would disclose a patent central hyaloid artery.

The PRESIDENT referred to several similar cases which he had seen. One was an old iritis and cyclitis case, and this was followed by increased tension. He wondered at the time how far the prolonged use of eserine had increased the growth of the vessels.

Mr. HUGH THOMPSON showed a patient with Macular Detachment of Retina, probably due to a new growth. There had been a regularly increasing grey detachment, but no increased tension. The site, he believed, was an uncommon one for new growth.

Pulsating Exophthalmos.

Mr. H. GRIMSDALE described a case of Pulsating Exophthalmos, which Mr. Frost showed in 1883. Sixty-five years ago the drumming sound in his head was set up by being run over by an empty van. The left eye was prominent, but he never noticed any diplopia. Mr. Grimsdale raised the question whether the statement so frequently made in books, and in the literature generally, that paresis of the third nerve was the prominent feature in these cases, was correct. In the few cases of it he had seen it was the sixth nerve which was most markedly affected. This man had complete paresis of both sixth nerves. It was what would naturally be expected, as the sixth was within the area of pressure.

Mr. C. HIGGENS spoke of two cases which started with the onset of labour. They recovered in a few months without special treatment.

Mr. J. H. FISHER agreed that the sixth was the nerve most likely to be involved in these cases, and entered into the anatomical reasons for it.

Gunshot Wound of Occipital Lobes.

Mr. NORMAN B. FLEMING showed a case of gunshot wound implicating both occipital lobes, the patient having been blind for four days after the receipt of the injury. Fragments of bone and metal were removed at the casualty clearing station. His present complaint was of headaches, giddiness, slight deafness on the right side, and some loss of sight, but central vision is acute. The fields show a sharply defined hemianopia below in each eye, with a considerable reduction of the peripheral part of the upper field.

Mr. **FISHER** spoke of a similar case which he saw in the Boer War and detailed the findings. He considered there was direct lacerated damage to one half and concussion effects on the other, probably causing œdema and punctiform hæmorrhages.

Mr. N. **BISHOP HARMAN** showed a case of new growth in the eye, which was becoming increasingly painful. The general view was that it was a glioma and should be removed.

THE RADICAL CURE OF GONORRHŒAL IRITIS.

Mr. S. H. **BROWNING**, bacteriologist to the Royal London Ophthalmic and All Saints' Hospitals, contributed a paper on this subject. He said that gonorrhœal iritis, being a late sequela of gonorrhœa, was not usually seen at first hand by venereal disease specialists, hence it was often not treated as a local affection. He contended that very few, if any, cases of gonorrhœal iritis ought to occur, and certainly there should not be recurrent cases if proper treatment were carried out. His object in reading the paper was to show that by thorough treatment of the genito-urinary tract in subjects of gonorrhœa the iritis would be permanently cured. He regarded gonorrhœal iritis as a toxic condition, that it was not due to the actual presence in the eye of the gonococcus. In only one case had the organism been isolated from the eye itself, and that was in Sidler-Huguenin's case, in which it was discovered in the blood-stained exudate from the anterior chamber of a case of gonorrhœal septicæmia. The author had himself tried many times to cultivate the organism from the exudate within a few seconds of it being drawn off, but had always failed. In these cases there was usually a history of gonorrhœa some years previously; he had never seen a case of iritis during the acute stage of urethritis, and others had confirmed this, on the observation of many thousands of cases. There is, in these cases, a specific reaction to gonorrhœal vaccines. It is not invariably associated with gonorrhœal rheumatism. There is a recurrence of the iritis, or an exacerbation of the symptoms after prostatic and vesicular massage, probably on account of toxins being thereby liberated into the blood-stream. The diagnosis is also helped by eliminating such sources of infection as pyorrhœa, septic tonsils, ear trouble, cystitis, and alimentary affections. The complement-fixation test had not given reliable results in his hands.

He considered treatment under two heads: preventive and radical. The first of these rested with those who saw such cases early; he laid great stress on the need for thoroughness at the hands of a genito-urinary specialist, for in that case he believed there would be no such condition as gonorrhœal iritis. Though vaccines did not materially shorten the acute stage of the disease, complications and sequelæ were largely prevented by their use. The radical treatment should consist of (1) immediate treatment by the ophthalmic surgeon; (2) the immediate use of vaccines; (3) continued treatment by vaccines and prostatic and vesicular massage, with, if necessary, treatment of the urethra. While an autogenous vaccine is being prepared, he urged the use of suitable doses of a reliable mixed vaccine. Some of the loss of repute of vaccine therapy in this connexion he attributed to the haphazard use of commercial vaccines. The proper dose of vaccine varied with each patient; his own range of experience varied between 5 millions and 500 millions. Vaccine therapy was no more than an aid to medical and surgical treatment; it was not a substitute.

Mr. Browning then proceeded to outline the proper method of carrying out massage of the prostate and vesicles. He did not think iritis was often due to other bacteria found after massage, such as staphylococci, *B. coli*, diphtheroids, &c. He had not met with a case of gonorrhœal iritis in a female. He narrated the leading facts in the histories of ten cases which he had carefully followed out, and which bore out his contentions; he had notes of 47 cases of the condition.

Discussion.

Mr. C. H. **MILLS** considered that no prostatic or vesical massage should be carried out until the acute stage of the iritis had subsided, nor should vaccine treatment be commenced until then. Massage resulted in a large dose of the toxin being liberated into the blood-stream. Any source of co-existing sepsis in the patient should be carefully searched for. A patient with both gonorrhœa and pyorrhœa was very likely to have joint trouble or other metastases. All cases of iritis in people who had a septic focus in the prostate or vesicles were not necessarily of gonorrhœal origin; he believed that in many such the original gonococcal activity had died out, and the lesion was perpetuated by a mixed infection on the original site of damage. He referred to the work of Colonel Young, of the American army, in his effort to trace a connexion between rheumatoid arthritis and chronic vesiculitis. In the majority of cases of vesicular trouble Colonel Young had isolated a streptococcus. Mr. Mills said he considered that 80 per cent. of the adult population of towns had had gonorrhœa. When the iritis occurred not more than three or four years after the gonorrhœa the cure was very hopeful, as the patient was usually capable of a generous production of antibodies.

Mr. **HIGGENS** narrated the histories of two long-standing cases which had had many recurrences of iritis over a number of years. Only one had vaccines, but in both the attacks ceased at about the sixtieth year, which probably meant that the stock of toxin had been used up and no further dose was acquired.

Mr. **BISHOP HARMAN** raised the question of carriers of the disease, and asked whether the fact that the disease was not conveyed to another after massage had been practised meant that after this process the gonococcus was sterile.

Mr. C. B. **GOULDEN** challenged Mr. Browning's contention that gonorrhœal iritis was not due to the actual presence of the organism in the eye.

Mr. WM. **LANG** discussed the justifiability of slitting up the vas deferens for the purpose of injecting argyrol.

Mr. **WHITING** spoke of the definite negative phase which followed a dose of vaccine, and was sometimes alarming for a time. But, unlike the similar phase in tuberculosis following the use of tuberculin, he had not seen a disastrous result from it. A marked positive phase followed, and with the continued use of the vaccine and the ordinary eye treatment for the iritis, the case progressed satisfactorily. He had not seen bad results follow the use of vaccine in the acute stage of iritis, at least for more than 24 hours.

Mr. **FISHER** asked as to the respective rôles played by vaccines and by prostatic and vesicular massage. If both were really necessary they should be carried out hand in hand.

Mr. **MILLS**, in the course of his reply, said that in nearly 100 per cent. of cases the posterior urethra was infected by the twelfth day, and it occurred especially early when syringes were being used by the patient himself. He had seen acute prostatic involvement within a month of the primary infection. Gonococci might be encysted, and in that way be carried about for years, and apparently without infecting others. Surgical exposure of the vas in this condition he regarded as a very drastic procedure and never necessary. He recommended distension of the bladder with 1 in 4000 permanganate, so that it could deal with organisms entering the viscus during or following the massage. Investigations on the subject of "protein shock" had shown the capacity of foreign protein to awaken the tissues out of a habitual lethargy and enable them to deal successfully with a microbic invasion.

Mr. **BROWNING** also replied, pointing out that patients at once began to improve as soon as they got over the negative phase; the iris went on to recovery in an extraordinary way. He thought gonococcal vaccine should be used, not necessarily sufficient to produce a severe reaction, but to stimulate the production of antibodies.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 6th, Mr. MARK HOVELL in the chair.

Naso-pharyngeal Tumour.

Mr. CHARLES CUTHBERT showed a Naso-pharyngeal Tumour which he had removed by lateral rhinotomy. The patient, a man aged 30, had intense headache and dyspnœa, and a tumour protruded from the right anterior naris, and occupied, too, the left naris, and projected into the naso-pharynx. There had been several severe hæmorrhages. The laryngotomy was performed under novocain anæsthesia, followed by a general anæsthetic through the laryngotomy tube, the pharynx being plugged. The modified Moure's operation secured good exposure of the nasal cavities. Bleeding was controlled by Crile's clamps on both external carotids. Though an extension of the growth had penetrated into the frontal cavity of the skull the dura mater appeared not to have been injured, and no cerebro-spinal fluid escaped. The microscopist reported the tumour to be an adeno-fibro-myxoma.

Sir WILLIAM MILLIGAN referred to the value of Kuhn's peroral intubation tubes for intratracheal anæsthesia in these cases.

Mr. H. TILLEY asked as to the actual origin of the tumour. He recommended the turning up of the cheek and removing both ascending maxillary processes, which gave a good view cf the area of operation, and rendered unnecessary the procedure adopted in this case; moreover it did not expose either external carotid.

Mr. W. STUART-LOW considered that the route through the antrum was a very good one in these cases, and it was not his practice to perform laryngotomy.

Mr. E. D. DAVIS congratulated Mr. Cuthbert on having ligatured both external carotids, as tying one only in the case of such a large growth he had found ineffective.

Dr. W. HILL pointed out that the carotids were only clamped in this case, and he thought there was a wider field of usefulness for these clamps.

Dr. P. WATSON-WILLIAMS hoped it would not go forth that ligature of only one external carotid was of no use; he had found a marked inhibiting effect in malignant growths of one tonsil from the ligature of one carotid.

Mr. W. DOUGLAS HARMER said in some of these cases the tumour proved to be fibro-angioma, a very vascular kind of tumour. Some of them had been fatal solely on account of the furious hæmorrhage. He thought Mr. Cuthbert had adopted the safer procedure. The method of approach he did not regard as nearly so important as securing a thoroughly good exposure.

Mr. C. W. HOPE referred to a case of angeio-fibroma in which the severity of the bleeding compelled a cessation of the operation for a fortnight, and when the tumour was examined microscopically it was found to have enormous blood spaces.

Dr. IRWIN MOORE alluded to the rarity of adenomatous or mixed adenomatous growths of the nares, and considered that this was a nasal growth arising from the middle turbinal or ethmoid region, and as such should be classified and described as a nasal growth extending into the naso-pharynx. This was important for the correct indexing of recorded cases. In the case of benign growths there was not usually much hæmorrhage, but he thought Mr. Cuthbert had kept on the safe side in preparing for such an emergency.

Sir STCLAIR THOMSON referred to the advantages of Moure's operation and exhibited drawings showing the satisfactory exposure of the growth obtained. He also referred to two cases of malignant growths he had operated upon by this method, one patient being alive and well six years, and the other three years, after operation.

Mr. CUTHBERT also showed a youth of 19, on whom thyroidectomy had been done for exophthalmic goitre. During the operation the pulse-rate varied between 180 and 200. He got well, and, until he was killed in France, was very active.

Pharyngeal Diverticuli.

Mr. S. HORACE LAW reported two interesting cases of Pharyngeal Diverticuli, one associated with the impaction of a foreign body. The outstanding feature of both cases was the increased salivation and the difficulty of disposing of the fluid. The hyper-secretion became normal in the one case after removal of the foreign body, and in the other after the operation of removal of the pouch. The ages of the patients were 53 and 70.

Dr. W. H. KELSON called attention to the importance in the removal of these pouches of passing a guide either before or immediately after giving the anæsthetic, because these patients were often in an exhausted condition, and time became important.

Dr. HILL spoke of the extreme thinness of the wall in some of these pouch cases, and hence the danger of rupture by the passage of a tube.

Dr. IRWIN MOORE advised coöperation between the general physician and the laryngologist, which would result in these cases being seen and treated much earlier.

Dr. J. DUNDAS GRANT described similar cases, and spoke of the importance of X ray examinations.

Mr. G. H. LAWSON WHALE showed a case of Rhinoplasty in a man who had been severely wounded in France, and received the congratulations of several members on his result.

Malignant Disease of the Upper Jaw.

Mr. HOPE showed a case of Malignant Disease of the Upper Jaw, for which lateral rhinotomy was performed. The growth was found to be epithelioma, and a section was shown. It started apparently in the ethmoid region, involving ethmoid, antrum, bony orbital floor, malar bone; and soft tissues in the pterygoid region. Hæmorrhage was practically nil, and progress uninterrupted. Radium had been applied since, and seven months later there was no sign of recurrence.

Dr. D. R. PATERSON thought it important to obtain permission from the patient before the operation to sacrifice the eye, if that proved necessary in order to remove the whole disease.

Laryngeal Case for Diagnosis.

Dr. ANDREW WYLIE showed a laryngeal case for diagnosis, which Sir WILLIAM MILLIGAN believed to be a post-cricoidal carcinoma, and with that view Mr. TILLEY agreed.

Dr. PATERSON said the case illustrated the type of condition he drew attention to in an address before the summer congress of the section—namely, a long history of dysphagia, with smooth glossy tongue and cracks in the lips. Dr. Thomas Guthrie, of Liverpool, had since declared this sequence to be quite common.

Actinomycosis of Tonsil.

Dr. POTTER exhibited a case of Actinomycosis of the Tonsil.

Major PARRY said it had been successively regarded as syphilis, diphtheria, and Vincent's angina, and some thought it might be epitheliomatous. The whole tonsil was found to be infiltrated with the parasite. He discussed the subject from the standpoint of the pathologist.

Copper Alamine in Lingual Cancer.

Dr. JAMES DONELAN again showed a man, aged 65, whose lingual cancer appeared to have been checked by treatment with copper alamine.

Dr. DAN MCKENZIE spoke of the cleaning-up influence of the copper alamine and its freeing of the area from septic material. This was probably a large part of the apparent benefit, and the same could be said of diathermy, which had a similar cleansing effect, and cancerous progress seemed to be much slower in consequence.

Mr. DOUGLAS HARMER agreed that cancer did not progress so fast in clean surroundings.

Atrophic Catarrh of Trachea.

Mr. L. COLLEDGE showed a patient with Atrophic Catarrh of the Trachea. Wassermann reaction was negative.

Mr. STUART-LOW urged that the man should leave his dusty warehouse occupation.

Mr. J. F. O'MALLEY recommended small doses of vinum antimonialis, and Dr. IRWIN MOORE suggested ammonium chloride in solution, applied by means of a powerful atomiser.

The Galvano-cautery in Laryngo-fissure.

Mr. G. W. DAWSON showed a patient on whom laryngo-fissure was performed four months ago. The galvano-cautery was applied for the troublesome bleeding which occurred during operation.

Mr. TILLEY and Dr. IRWIN MOORE objected to the use of the galvano-cautery to check hæmorrhage in laryngo-fissure owing to the sloughing which ensued and the danger of secondary hæmorrhage.

? Papilloma of Larynx.

Mr. H. BUCKLAND JONES showed what he regarded as probably a Papilloma of the Larynx. He invited opinions as to its malignancy.

Sir STCLAIR THOMSON referred to the difficulty of diagnosis in such conditions, even though a piece were removed for the purpose. This seemed well defined and limited for a simple papilloma.

Mr. LAWSON WHALE mentioned a case in which a well-known laryngological pathologist could not be sure of the diagnosis. The growth was removed and proved to be malignant.

Dr. KELSON showed a case of Ulceration of Pharynx and Larynx. There was no history of syphilis, and no tubercle bacilli were found. The left arytenoid and left ventricular band were markedly œdematous.

THE International Society known as "Pneumothorax Artificialis" has been revived. It was founded at the Rome Tuberculosis Congress to form a link between those in all countries practising nitrogen replacements, so as to ensure continuity of treatment on the patient's change of residence. The secretary is Professor U. Carpi, of Lugano.

RÉUNION OBSTETRICALE ET GYNÉCOLOGIQUE DE MONTPELLIER.—At Montpellier the sittings of the Obstetrical Society have now been regularly resumed, and a number of interesting communications were read at two recent meetings. At the first M. Guerin Valnale described a case of Pregnancy with Inoperable Carcinoma of the Cervix. Labour was premature, a child weighing less than 1600 g. was delivered by Cæsarean section. Subtotal hysterectomy was then done, and there was marked arrest of the rate of growth of the tumour for three months afterwards. In the discussion which followed M. Vallois said he had practised in similar cases Cæsarean section followed by Porro's operation.—M. Vallois described a case of Convulsive Movements in the Left Arm in a baby a few days after its delivery with forceps. A portion of the right parietal bone was removed and a collection of blood evacuated after opening the dura mater. Complete recovery followed the operation.—M. de Rouville read the notes of a case of Tubal Abortion with the formation of a hæmatocele between the uterus and the bladder. Firm adhesions of the lower border of the great omentum to the posterior aspect of the left appendages determined the rare situation of the blood collection. There was no trace of blood in Douglas's pouch.—M. de Rouville also described a case of Complete Inversion of the Vagina following vaginal hysterectomy for complete prolapse of the uterus. He performed total excision of the vagina and restored the perineum in layers. The operator discussed the case and the methods of treatment.

At the second meeting M. de Rouville and M. J. Cohen described two cases of Ovarian Grafting, with the results that followed. In the first case both breasts increased in size, and became painful at the menstrual periods. The latter, which were quite regular at first, became irregular later, and metrorrhagia also occurred. Nervous symptoms were less intense. The grafts were removed on account of the hæmorrhage, with the result that all bleeding ceased immediately. Microscopic section of the grafts showed them to be active but degenerating. In the second case menstruation was quite regular three months after the operation and remained so for six months. No breast changes were observed. There was excellent health for a year, followed by pains in the left iliac fossa, which necessitated a second operation five and a half years after the first. Adhesions were freed round the left appendages, and subtotal hysterectomy was done. Macroscopic and microscopic section of the uterus showed "sclerotic and atrophic" changes; thus it was concluded that menstruation after grafting was due to the grafts and not to supernumerary ovaries. In each case the grafts were autogenous, and was placed in the subcutaneous tissue of the abdominal wall.

Reviews and Notices of Books.

DISEASES OF WOMEN.

By Ten Teachers. Under the direction of COMYNS BERKELEY, M.A., M.D., F.R.C.P., Obstetric and Gynæcological Surgeon to the Middlesex Hospital. Edited by COMYNS BERKELEY, H. RUSSELL ANDREWS, and J. S. FAIRBAIRN. London: Edward Arnold. 1919. Pp. 650. 30*s*.

THIS is a companion to the book on Midwifery by the same Ten Teachers. As the authors point out in the preface, there is more room for diversity of opinion in an account of the diseases of women than there is in a text-book on midwifery, and consequently it has been more difficult to give a collective opinion in some parts of this book. An attempt has been made to approach the subject from the point of view of State medicine, and to develop the preventive attitude in the mind of the student. With this object a précis of the report of the Royal Commission on Venereal Disease has been included. A chapter on the part played by the psychological factor in the ætiology of pelvic disease has also been introduced. The book forms a sound guide to the student on diseases of women, and will no doubt be as widely read as the companion volume on Midwifery.

A special section is devoted to the main symptoms associated with diseases of the pelvic organs, and in this the chapters dealing with dysmenorrhœa and abdomino-pelvic pain are excellent. On p. 169 there is an interesting diagrammatic drawing of the manner in which shortening of the utero-sacral ligaments is supposed to produce acquired anteflexion; we should like to ask the authors if any one of them has ever met with the condition delineated in the drawing. It is a curious fact that when the abdomen is opened in cases of old chronic pelvic cellulitis this condition is not met with, and we very much doubt whether anteflexion is ever produced in this way. Has it been seen either in the post-mortem room or on the operating table? The chapter on endometritis is on modern lines, and should give the student a good idea of what is meant when this term is employed. The authors believe that there is such a condition as chronic endometritis, and that the thickening of the endometrium, associated with it, may be taken to represent the overgrowth moiety of a past chronic inflammatory process. They do not believe that the thickening in the great majority of these cases is due to overgrowth from chronic congestion. In the chapter on chronic metritis they distinguish clearly between the two types, one corresponding to subinvolution and the other to a pure hypertrophy of all the elements of the uterine wall. We notice a slight error on p. 224—"symphysis pubis" should, of course, be "pelvic brim"; the normal uterus is never below the level of the symphysis pubis, using these words, as they should be used, in their proper anatomical sense.

In the treatment of retroflexion of the uterus after delivery the recommendation is made to introduce a ring pessary; we suggest that a Hodge pessary acts better in these cases, and has the advantage that it does not stretch the vagina so much, and therefore has less tendency to produce subinvolution of that canal. There is a very good discussion on the relative advantages of early and late operations in cases of inflammation of the appendages, and both views are well presented. The treatment of a uretero-vaginal fistula is not of much importance from the student's point of view, but we doubt the statement that the best operation is to open the abdomen and to attempt to implant the cut ureter in the bladder; a number of these cases have now been cured by plastic operations on the vagina, and this should have been mentioned. We cannot agree with the statement that treatment with radium is not so successful as X rays in relieving the symptoms due to fibroid tumours; we believe it probable that in the future treatment with radium will play a larger part in the cure of the hæmorrhage due to fibroids.

The chapters dealing with cancer of the body and neck of the uterus are particularly good, and should be most helpful to the student. The authors prefer the term cystic embryoma to that of dermoids of the ovary, and favour the view of their origin by fertilisation at a later date of primordial ova in the ovary of the developing embryo (epi-embryogenesis). They might have added that this suggestion explains the frequency of ovarian dermoids and the great rarity of dermoids within the testis. The chapter on neurasthenia in association with diseases of the pelvic organs will help the student to understand how often in minor pelvic ailments it is more important to treat the patient than her pelvic organs. The sections describing the various operative procedures are sufficiently full and the illustrations are clear.

This is a good book, reflecting great credit on those who have contributed to it and supervised it.

THE PRINCIPLES OF GYNÆCOLOGY.

By W. BLAIR BELL, B.S., M.D. Lond., Gynæcological Surgeon, Royal Infirmary, Liverpool, &c. Third edition. London: Baillière, Tindall and Cox. 1919. Pp. 660. 38*s*.

IN the preparation of this third edition Dr. Blair Bell has rewritten a considerable portion and added much material and many new illustrations. The pathological arrangement of the book has been retained, and the author has wisely not attempted to describe the many variations in technique of different surgeons in the section on operative procedures. The appearance of a third edition of this text-book within nine years proves that it has met with appreciation.

The first section dealing with the evolution, development, and anatomy of the female pelvic organs is good; it is, indeed, in our opinion, the best description of this subject to be found in any English text-book of gynæcology. It is interesting to note that the author does not believe that the so-called vascular caruncle is an angioma; rather he thinks it is an infected papilloma, containing generally no adenomatous tissue. An erosion of the cervix is regarded as an adenoma, and is recommended to be treated by excision or scraping; in the same way the condition called in some text-books chronic hypertrophy of the endometrium and in others endometritis, Dr. Blair Bell terms a diffuse adenoma of the endometrium, rejecting the term endometritis altogether. It is a pity that this condition should be described in so varying a manner by the authors of most of the popular text-books, so that in one book the student is taught to look on these conditions as due merely to an abnormal persistence of the normal ante-menstrual congestion, in another that they indicate a condition of chronic inflammation, while in a third they are described as innocent neoplasms of the genital tract. Little wonder that the average student is very confused on the subject. In the surgical treatment of fibromyomata of the uterus the author is in favour of supravaginal hysterectomy, with the retention of the ovaries and sufficient endometrium to ensure subsequent menstruation. It is unfortunate that the tumours generally known as adenomyomata and adenofibromyomata are described in this work as endometriomyomata and endometriofibromyomata, although as they are relatively unimportant it is not of much moment.

In considering the prophylaxis of carcinoma of the cervix great stress is laid upon the importance of repairing lacerations of the cervix and of adequately treating chronic cervicitis, the two most powerful predisposing factors in the development of these growths. We are glad to see that Dr. Blair Bell makes a plea for greater simplicity in the classification of carcinoma of the body of the uterus. We quite agree that the minute distinctions made by some authors are unnecessary and misleading to the student. The section dealing with gynæcological operative procedures is sufficient and well illustrated, as, indeed, is the book as a whole.

This is a distinctly good and well written work, bearing the imprint of the author's personality, and therefore much more interesting to read than many colourless compilations.

FIELD AMBULANCE ORGANISATION AND ADMINISTRATION.

By JAMES HARDIE NEIL, Lieutenant-Colonel, N.Z.M.C. London: H. K. Lewis and Co., Ltd. 1919. Pp. 125. 4*s*. 6*d*.

THIS little book consists of a condensation and extradition of matters relating to field ambulance management from official manuals and orders with addition of a great deal of most valuable suggestions and scheduled routine duties and regulations based on extensive personal experience in the field. Colonel Hardie Neil's name was known up and down the line wherever the New Zealand Division wandered, and his keenness and energy in everything that appertained to the maintenance of a healthy mind in a healthy body was well known. It is difficult to imagine how his activities as an efficient commanding officer, captain of a doughty cricket XI., and manager of a concert party could have permitted sufficient time for the collection and arrangement of the large quantity of valuable material that is contained in this little book. No single item of field ambulance work, whether in the line or at rest, appears to have been overlooked.

The author is to be congratulated on the publication of a small book, entirely free from padding, and full of information that cannot fail to be of great assistance to all field ambulance officers. Many will feel sorry that it was not available in the days when they had real need of such a vade mecum.

THE LETTERS OF A WIDOWED PHYSICIAN TO HIS DAUGHTER.

London: Baillière, Tindall, and Cox. 1920. Pp. 64. 2*s*. 6*d*. net.

THIS is an excellent little book, comprising within its 64 pages more common-sense than is found in many more pretentious treatises. It is published in four separate sections, which, says the author, can be handed out to their recipients at the proper ages—i.e., at puberty (12½ years), at maturity (18 years), at marriage, and at motherhood. The information and advice given are very plain-spoken, but withal duly reticent and dignified, and the only exception that we can find to take is that as the girl to whom the letters are addressed is advised by the author "to let your sisters know about it"—i.e., the oncoming of menstruation, we should have thought that her father need not have told her so much about it, unless she were an eldest or an only daughter. However, perhaps this is hypercriticism, and the book as a whole is admirable. Especially so is the section on matrimony, for even nowadays many a girl plunges into matrimony with only the haziest ideas of what the estate implies, with the consequence that difficulties arise which sometimes lead to two lives being ruined. Against such tragedies as these this little book might be a safeguard.

THE SOUL IN SUFFERING.

A Practical Application of Spiritual Truths. By ROBERT S. CARROLL, M.D. New York: The Macmillan Company. 1919. Pp. 242. 8*s*. 6*d*.

WHO first gave this opinion of a book, for it has many attributions: "Those who like this kind of book will find this book the kind of thing they like"? We can say the same of Dr. Carroll's work. He tells us that it "stands for medical ideals reaching out to Christian ideals, that one of the greatest problems of human existence—the problem of suffering, which through the ages has been so pitiably solved by the many—may be a bit more worthily met by all mankind." The problem of suffering is indeed one which is a great mystery, and one which so far has not yet been solved, and we cannot see that Dr. Carroll brings any light to bear on the difficulties. Platitudinous truisms, such as that most elderly people eat too much, that work is better than idleness, that a merely material life is not, or should not be, the only aim of humanity, are things to be remembered, but they do not go far towards helping the suffering soul.

SYPHILIS IN CHILDHOOD.

By LEONARD FINLAY, M.D. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 154. 8*s.* 6*d.*

THE author supplies an excellent and up-to-date survey of the lesions commonly seen in syphilitic children. Although primarily intended for those occupied with the clinical manifestations of syphilis, Dr. Finlay has not neglected to touch on such interesting topics as infection of the child in the absence of disease of the mother. It is impossible, in the author's opinion, to give a definite answer one way or the other to the question of paternal syphilis. More information is required before a decision on this point can be arrived at. At the same time it must be admitted that some clinical histories—e.g., those referring to women becoming pregnant in turn to syphilitic and non-syphilitic men, suggest that infection of the child may sometimes occur in the absence of infection of the mother. The question is of great interest, but one concerning which it is extremely difficult to obtain reliable information.

After describing the various lesions encountered amongst syphilitic children, the author discusses the relation of this disease to marasmus, the splenic anæmia of infancy, and Mongolian idiocy. In his experience the connexion between syphilis and the latter conditions is very doubtful. The author employs for the administration of salvarsan to infants the technique described by Norgerrall, preferring injection into the veins of the scalp to intramuscular medication. He rightly emphasises the importance and efficacy of antenatal treatment, and agrees with all those who have any experience in this matter as to the extremely satisfactory results thereby obtained.

The book is well illustrated, and contains some excellent reproductions of radiograms. The coloured plates are equally good. We recommend the book to all engaged in child welfare and in combating venereal disease.

LEHRBUCH DER PHYSIOLOGIE DES MENSCHEN.

Herausgegeben von N. ZUNTZ und A. LOEWY in Berlin. Leipzig: F. C. W. Vogel. 1920. Mit 302 Abbildungen und 3 Tafeln. Dritte verbesserte Auflage. Pp. 789. M.38.

THE first edition was published in 1909, and of the original collaborators three have since died—Professors Nagel, Schenk, and Langendorff. Professor Verworn (Bonn) writes a short chapter on the lines of his "General Physiology." The chemical constitution of the body and the morphology and chemistry of the blood on the usual lines are supplied by Professor J. Müller, of Dusseldorf; the general physiology of muscle and nerve by O. Weiss, of Königsberg; the central nervous system by the veteran, Professor Sigm. Exner, of Vienna. Other chapters on the various branches of physiology are each supplied by a specialist.

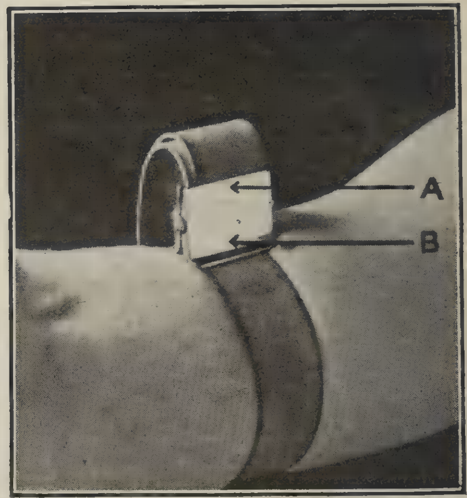
The amount of information of a purely physiological character—for there is but little histology—is very extensive, more especially when it is noted that the size of the page is relatively large, while there is a considerable percentage of small type used. Taken as a whole, this text-book will be found useful for reference, but the average student, German or other, will most likely be content with the large text or a part thereof. Exner's article on the central nervous system would have been improved by the introduction of a few more diagrams, more especially to elucidate conduction in the cord. Hypnosis and allied subjects receive more attention than in English text-books. The chapters on the senses, by Dr. Von Kries, are excellent. Some of the more recent work by English investigators does not seem to have found its way into several sections—for instance, into the article on the circulation, nor could we find much on aviation and the effects of high altitudes in this regard. The chapter on digestion is comprehensive. One of the best articles seems to us that by Metzner on Endocrine Glands and Internal Secretions. Whatever is said about vitamines in the text, this word is not to be found in the index. Perhaps the secretion of urine might have been more fully dealt with, and the same remark applies to the cerebellum and spinal cord.

This is practically a treatise on pure physiology, with little reference to the applications of this subject to practical medicine. It is a compendium of physiological facts and doctrines well suited to one who already possesses a more than elementary knowledge of the subject. A short reference to the literature is appended to each article—just sufficient to indicate where some of the chief original papers may be found. For teachers of physiology it will be found a most useful and compendious book of reference, while it fully meets the requirements of the advanced student of medicine. We can well understand that its production has been beset with many difficulties.

New Inventions.

LIGHT TOURNIQUET FOR USE DURING INTRAVENOUS MANIPULATIONS.

DURING the operations of intravenous injection of drugs and saline, transfusion of blood, and withdrawal of blood for Wassermann and Dreyer's test by vene-puncture and the like, it not infrequently happens that efforts to release the tourniquet are accompanied by disturbance of adjustment of the needle in the vein, or even by its complete dislodgment. This is not only a source of annoyance to the operator, but may lead to serious and painful consequences to the patient, especially if certain of the antisyphilitic drugs are allowed free access to the cellular tissues. Accordingly, at the request of the late Dr. A. E. Stansfeld a tourniquet was designed which could be released with the greatest ease by pressure of the finger and thumb of one hand. It has the additional advantage of being simple, inexpensive, and, if necessary, easily sterilised. The instrument (see figure) consists of a plain rubber strip, the free ends of which are held together by means of a small metal clip. The loop thus formed is placed round the arm, and by pulling on the rubber and at the same time sliding the clip towards the arm the tourniquet is tightened to the required degree. Immediately on leaving go of the clip the rubber band is firmly held, as the two lower lips at B are pulled outwards for a small fraction of an inch, thereby causing the upper lips at A to pinch the rubber, which is thus tightly gripped. There is no danger of slipping, as the greater the pull on the rubber the more firmly it is held. When it is required to release the tourniquet, gentle pressure by the finger and thumb on either side of the clip at B will cause the two lips at A to move apart. This will allow the rubber to slide freely through the clip and relieve the pressure to any required extent.



This instrument may be obtained from Messrs. Maw, Son and Sons, Aldersgate-street, London, E.C.

R. G. CANTI, M.D. Cantab.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 28, 1920.

The Use of Figures in Medicine.

THE Council of the Royal Statistical Society is about to present to the Government an influentially signed petition urging the need of an immediate inquiry by a Royal Commission or Parliamentary Committee into existing methods of collecting and presenting public statistics. The petition draws attention to the defects and omissions of current statistics. For instance, there is no general information as to wages since the incomplete Census of 1906, nor any but the most meagre information regarding the consumption of food, clothing, and other necessaries. In fact, it is almost universally the case that persons engaged in any serious investigation have to rely on roughly approximate estimates in relation to one or more essential factors. The matters referred to in the petition are not of immediate interest to medical men; but, soundly based as our medical statistics may be, they are capable of improvement. The coördination of official statistics will be of future advantage in many directions, but the advantage will only be proportionate to the increase among medical men of the ability to employ figures.

Most of the excellencies of the Registrar-General's publications can be traced back to the genius of a single man, WILLIAM FARR, and are due to the happy accident that one who combined medical and statistical knowledge in a just proportion was allowed a free hand in days when vital statistics were not of sufficient interest to the general public for it to be worth the while of the uninformed to meddle with them. This is no longer the case; all realise vaguely that vital and medical statistics are of great importance. But, unfortunately, medical knowledge of and interest in statistics have not increased pari passu. The handful of medical men in this country who have devoted themselves to statistical science are not in a position to exert any serious influence upon the official organisation of statistics, and any development in the near future would almost inevitably be motived by the lay civil servant. The blame for this rests not with the civil servant but with the medical profession, which has been content to praise FARR and marvel at GALTON, without seriously striving to profit by the lessons of these great men. It is to be hoped that any changes made now will not be of such a character that, when a properly instructed body of medico-statistical opinion comes into existence, the system will be unamenable to remedy. Statistics can be trusted if they have been collected with care, when the larger the number of cases the greater, of course, will be the probability of the elimination of disturbing factors. The hasty accumulation of a few results is not a contribution to statistical methods, though it may afford valuable suggestions.

The Selection and Care of Airmen.

THE time is critical for civil aviation. The teams of experts picked by the war are being disbanded just at a time when organisation and research in aeronautics are most needed. Lord WEIR'S Committee, which has just reported,[1] fortunately fully recognises these facts, and suggests a central institution at the Imperial College of Science and Technology, where the professorship lately founded by Sir BASIL ZAHAROFF is to be held. In the meantime well-considered research on the medical aspects of aeronautics is not altogether in abeyance, and we welcome the appearance of two cheaply priced little manuals[2] by French doctors of experience.

Drs. MAUBLANC and RATIÉ deal with the selection of candidates for aviation, based on experience at Chartres. In addition to the ordinary clinical methods they employ certain tests which give precise results. Both systolic and diastolic pressures are measured, and the value of a relatively high diastolic pressure is duly emphasised. Healthy condition of his upper respiratory passages is of great importance to the airman, owing to the drying effect of altitude, as well as the necessity of efficient air entry. Determination of the vital capacity is recognised as being of service in the selection of the airman, the average being given as 3000 to 3500 c.cm., a lower figure than is found in this country. In the abdominal system attention is drawn to the advantage of good muscular tone and the serious drawback of any digestive ailments such as chronic dyspepsia. In examining the central nervous system no special tests are employed. Normal acuity of vision and good ocular muscle balance is demanded, although it is admitted that some successful pilots do not reach this standard. Both auditory and vestibular mechanisms are thoroughly tested. In the ultimate selection of candidates, not otherwise eliminated, great attention is paid to the psychomotor responses, which are tested by a method modified from that of CAMUS and NEPPER, a chronograph by RICHARD being employed. The average times for these reflexes are: visual 0·19, auditory 0·145, tactile 0·14 sec. Importance is attached to the constancy of the readings—regularity indicating good condition, irregularity bad condition. These reflex times are somewhat slowed by age, and largely altered by illness and accident, the responses generally becoming slow and irregular. Reflex responses are also noted to alterations of equilibrium brought about by means of a special chair, and interesting results have been obtained. It has been shown that the mean reaction times of skilled pilots to such alterations of equilibrium are quickened by training, the reduction in the time-reaction of candidate and trained pilot in one series of experiments being: sagittal variation, 0·12 to 0·09 sec.; transversal, 0·12 to

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[1] Report of the Committee on Education and Research in Aeronautics. H.M. Stationery Office, Cmd. 554. Price 2*d*.

[2] Guide pratique pour l'examen médical des aviateurs, &c., by Drs. Maublanc and Ratié. Price 3 fr., pp. 109. Le Mal des aviateurs, by Professor R. Cruchet and Dr. R. Moulinier. Price 3 fr., pp. 96. Paris: Librairie J. B. Baillière et Fils (both volumes).

0·09 sec.; horizontal, 0·18 to 0·15 sec. Variation in these responses may serve to detect illness and fatigue, the psychomotor reactions under these conditions becoming slow and inconstant.

Another series of observations, emerging from the work of Drs. Maublanc and Ratié, concerns the effect of flying upon the blood pressure; these (for an unstated number of cases) are summarised as follows:—

	Systolic.		*Diastolic.*
Augmented in	20 per cent.	......	23 per cent.
Diminished in	30 ,,	......	7 ,,
No change in	46 ,,	......	70 ,,

Exact details as to the manner in which these experiments were carried out are not given, but the results are in marked contrast with those recorded by Professor Cruchet and Dr. Moulinier, the authors of the second manual under consideration, who have made extensive observations upon pilots, including many famous fliers, such as Legagneux and Morane. Their conclusion is that the arterial pressures in normal subjects are constantly augmented on landing. The increase in pressure is less apparent when the subject is fatigued, and may in a state of exhaustion be replaced by a hypotension. Their results have been confirmed by Ferry, and support those previously obtained by Pachon on athletes, but differ somewhat from those recorded in experiments in rarefaction chambers; the authors incline to attribute this to the effect of speed in the aeroplane. In regard to the use of oxygen, reference is made to recent experiments by Garsaux, which tend to support the view of Agazotti that the addition of carbonic acid gas, 13 parts to 100 of oxygen, improves the efficacy of oxygen for high-altitude flying. It is doubtful if such be the case when oxygen is administered continuously, before any washing out of carbon dioxide has taken place by the deepening of the respiration.

Broadly speaking, it may be said that there is no special disease of airmen. It is the strain thrown upon the various bodily systems which eventually leads to a condition of fatigue and breakdown, such as might occur in any other arduous occupation. In this respect the two French monographs confirm the results obtained by British workers. All are agreed in regard to the necessity of a special medical examination for the selection of airmen and of periodic re-examination of pilots, such as is now required by the International Aeronautical Convention. The true medical treatment of the airman is a preventive treatment, and it is important that this should be recognised, and acted upon, at the outset of the development of civil aviation. It will be a feather in the cap of preventive medicine if no new occupation disease arises, but the responsibility thrown upon medicine is here a very real one. The examining officers, forming part of a highly equipped and properly trained service, working individually or in groups, will have to be on guard against many possible sources of error.

Safety and Comfort in Child-Bed.

THE normal healthy woman would, we believe, prefer to lie in at home if she could do so with safety and a reasonable amount of comfort of body and mind. But at present in too many instances she commands neither safety nor comfort. The maternal death-rate in child-bed remains what it was more than half a century ago; in 1917 for every 1000 births 48 mothers died, and it can hardly be doubted that two or three times as many were permanently invalided. When introducing an important debate[1] last September Dr. T. W. Eden gave his opinion that the increased provision of maternity hospitals would have a beneficial effect upon this mortality, and the general consensus of the discussion confirmed this view. The Ministry of Health appears to be of the same mind in its most recent Memorandum[2] on maternity and child welfare, although observing caution in regard to the extent of the need. Two classes of patients, it is stated, clearly require provision for child-birth away from home: those who show some abnormality, and those whose domestic conditions are unfavourable. The first class is of known or ascertainable extent, and the provision should be in the nature of beds in maternity hospitals, of which several forms are described and illustrated in the Memorandum. The second class arises largely from an emergency which time and appropriate handling may relieve. Comfort in child-bed has been sadly diminished by the house famine and the disastrous lack of domestic service. A typical example drawn from the daily press of Tuesday is that of an ex-naval man living with his wife and two children in a single room and applying for accommodation in the workhouse after a year's fruitless search for other quarters. Under such conditions child-bearing at home is unthinkable, and in our own large towns, as in Paris,[3] some temporary provision is very urgent. The report of a conference convened in November by the Central Nursing Council,[4] and now issued, throws additional light on the difficulties of maternity nursing as they exist in London at the present time. It is there stated, without contradiction, that the bulk of confinements in London are now attended by midwives, who are often too overwhelmed with work to nurse their own cases, while trained nurses seem loath to work under them. Sir William Collins, in summing up the lessons of this conference, dwells on the need for municipal maternity hospitals, but he puts, as the first and foremost want, a more ample supply of home helps. Home-helping may well provide an outlet for those who possess a talent for domestic service.

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[1] Section of Obstetrics and Gynæcology, Royal Society of Medicine, THE LANCET, 1919, ii., 1081.

[2] Memorandum in regard to Maternity Hospitals and Homes. Memo. 15/M. & C. W. H.M. Stationery Office. Price 9*d*.

[3] See Paris correspondence, p. 513.

[4] Report of Informal Conference on Maternity Nursing between the Executive Committee of the Central Council for District Nursing and the Medical Officers of Heatlh of the Metropolitan Boroughs, held at the Ministry of Health, Nov. 25th, 1919.

Rural Water-supplies.

AN instance of some of the difficulties besetting the provision of a rural water-supply is afforded by a recent number of the *Municipal Engineering and Sanitary Record*, in which is given an account of the present deadlock in the arrangements for providing a particular rural parish with a wholesome supply of water. It appears that the present supply, which is derived from a number of surface wells subject to pollution, has been condemned by the medical officer of health. The rural district council is prepared to take steps to provide a satisfactory public supply, but the project is opposed by the principal ratepayers of the parish, who carried the day at a parish meeting summoned to consider the question. It seems likely that the resolution there passed, however unanimous, may not adequately express the opinion of the poorer inhabitants largely concerned, who may be unwilling to take sides against their more important neighbours. The poorer inhabitants are, therefore, to be compelled to continue in the use of their polluted water-supplies owing to the lack of public spirit of the richer members of the community, who can probably manage either to safeguard their personal supplies of water or to replace them by some pleasant substitute. This is far from being an isolated example of the many problems which confront those responsible for the provision of water-supplies in rural districts; these problems are largely the product of inertia and of selfishness in combination. In such a case as the above, the rural district council ought to overrule the opinion of the parish, and should apply its powers under Section 51 of the Public Health Act, 1875, to provide a public water-supply. But the councils of rural districts are cautious and conservative to the last degree, and they know that the Act in question, while conferring the power, does not impose the duty of providing such a supply. There is more than one weak link in the legal machinery in this respect. For example, Section 3 of the Public Health (Water) Act, 1878, refers to the "*duty* imposed on them [rural authorities] by the Public Health Act, 1875, of providing their district or any contributory place ...... with a supply of water, where danger arises to the health of the inhabitants from the insufficiency or unwholesomeness of the existing supply," &c.; yet the most diligent search fails to trace in the 1875 Act the statement of any such obligation as distinct from the grant of such powers. To the non-legal mind, intent upon public good, it appears that the law on the subject needs overhauling, with special reference to the substitution of obligatory for permissive clauses.

The officers of rural authorities may find useful leverage to hand in the new housing schemes. Under Section 6 of the Public Health (Water) Act, 1878, every house erected after March 25th, 1879, must have a sufficient and wholesome supply of water for consumption and for domestic purposes, and the house cannot be occupied until a certificate to that effect is given by the sanitary authority on the report of its inspector of nuisances or medical officer of health. In the past houses have crept into existence where that certificate has been obtained, almost as by stealth, in cases where the water-supply was not really above suspicion, and where the only excuse was that the house, like the baby in the old story, was "only a little one." But a new attitude is needed with the more serious question of the erection of houses in number previously never dreamt of. The officers in question may now not feel justified in approving water-supplies in bulk where before they approved, with some qualms at times, supplies to individual houses erected at infrequent intervals. If their reports do in effect prove adverse, the district council will be faced with two alternatives—to drop the housing scheme, which will be likely to lead to trouble with the Ministry of Health, or to screw up its courage to the provision of a proper water-supply. It is to be hoped that the latter alternative will commend itself even before the pressure of public opinion and of the Ministry compels its adoption.

Annotations.

"Ne quid nimis."

IN MEMORY OF WILLIAM OSLER.

A PUBLIC meeting has been called in the lecture theatre of the Museum at Oxford on Saturday, March 6th, at 3.30 P.M., to consider what steps should be taken to perpetuate, in some appropriate manner, the memory of Sir William Osler. Invitations have been sent out in the names of Arthur Thomson (Dr. Lee's Professor of Anatomy), Georges Dreyer (Professor of Pathology), C. S. Sherrington (Waynflete Professor of Physiology), J. A. Gunn (Professor of Pharmacology), P. E. H. Adams (Reader in Ophthalmology), E. W. Ainley Walker (Lecturer in Pathology), A. P. Dodds-Parker (Lecturer in Applied Anatomy), A. G. Gibson (Lecturer in Morbid Anatomy), Wm. Collier (Litchfield Lecturer in Medicine), and H. C. Bazett (Welsh Lecturer in Clinical Physiology), all immediately concerned with the teaching of medicine in Oxford. Many University officials and heads of houses have intimated their intention of being present. Notifications of the intention to be present should be sent to the interim-secretary, Professor Gunn, at the Museum, Oxford.

THE WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

THE National Relief Fund has made a substantial grant of £10,000 to the War Emergency Fund to be used for general purposes. This enables the War Emergency Fund to enlarge the scope of its activities in a practical manner. The Committee of the Fund will now be able, for example, to make liberal grants for the education of children of medical men who held commissions in the medical services during the war, and we cannot conceive any better destination for the money at their disposal. Next, perhaps, to the education of his children the principal anxiety of the medical man is that death in harness should not imply immediate poverty for his family, and this apprehension, also, takes its rise largely from the feeling that such poverty must lead to lack of education. But the medical men who have taken thought for the position by insuring their lives, have found in existing circumstances the payment of premiums a heavy burden, and the relief of this responsibility is one direction which grants from the War Emergency Fund may very usefully take. There is also the burden of the loan to purchase house or practice; interest charges are pressing heavily on many of the doctors who were away with the colours, while timely help will enable them to make good a position which has been jeopardised by world events, and not by personal rashness. We are able to say that any officers applying for assistance on such grounds as we have set out will be heard sympathetically. Communications should be made to the Honorary Secretary of the Fund at 11, Chandos-street, Cavendish-square, London, W. 1.

THE BLOOD PRESSURE IN PULMONARY TUBERCULOSIS.

It is a curious fact that in spite of numerous investigations into the blood pressure in pulmonary tuberculosis, and the unanimity of most observers, the diagnostic and prognostic significance of a low blood pressure in doubtful cases of tuberculosis is commonly overlooked. French and American writers attach great importance to this sign, and both Papillon and Regnault have found it a useful guide at a stage when the physical examination of the chest is negative. German writers are, on the whole, less impressed by the diagnostic value of this sign. In a recent publication,[1] Reinhold Nauclèr has combined a review of the literature of this subject with a long series of original investigations. These showed that though considerable individual variations of the blood pressure might be found in groups of cases classified according to Turban, yet the average pressure sank uniformly with the extent and severity of the disease. And even in the matter of individual cases the highest pressures were observed in Turban's stage I., the lowest in moribund cases. Both diastolic and systolic pressures were lowered by the disease, but the diastolic was less affected than the systolic pressure. It was also noted that the fall of the pressure depended rather on the malignity of the disease than on its anatomical distribution; in some cases characterised by considerable malaise, but by few and insignificant chest signs, the pressure was extraordinarily low. Measurements of the blood pressure in the same individual over a long period sometimes showed that a comparatively high pressure might come down with a run if the disease was rapidly progressive, whereas in other cases an originally low pressure might fall only a trifle during the further course of the disease. A comparison of the blood pressure with the weight curve showed that the average pressure was higher among those who gained weight than those whose weight was stationary; and in these again it was higher than in those who lost weight. There was also a definite parallelism with regard to the blood pressure and hæmoptysis. Not only was hæmoptysis comparatively frequent among the subjects of a high blood pressure, but the severity of the hæmoptysis also corresponded with the height of the blood pressure. Nauclèr contrasts these findings with those of Professor Bang and others, who have argued that the pressures in the systemic and the pulmonary circulations are independent of each other. It may be, as Nauclèr suggests, that the coincidence of a high systemic blood pressure and hæmoptysis is not direct, and that both may be due to a third common factor. As to the value of the blood pressure in the early diagnosis of tuberculosis, it is disappointing to find that though it was subnormal in 60 per cent. of Nauclèr's patients in the first stage, both in this and in the second stage perfectly normal pressures occurred frequently. It would therefore seem that a low pressure is very suggestive of tuberculosis in doubtful cases, but a normal pressure must not be interpreted as excluding tuberculosis.

THE CHADWICK PRIZEMEN.

The Chadwick trustees have awarded a gold medal and a prize of £100 to each of the two medical officers in the British service deemed to have distinguished themselves most in promoting the health of the men under their care. The selection has been made by the director-generals of the medical services, and at 5 P.M. on Monday, March 8th, in the lecture-room of the Royal Society of Arts, Sir Robert Hill will present Surgeon-Commander Edward L. Atkinson, D.S.O., R.N., and Sir John Goodwin will present Brigadier-General W. W. O. Beveridge, D.S.O., A.M.S., to Sir William Collins, who will make the presentation.. At the conclusion of the ceremony Sir John Goodwin will deliver the first of a series of three lectures on Military Hygiene in Peace and War.

PSYCHICAL SCIENCES.

In two numbers of the *Anglo-French Review*—namely, those for December, 1919, and January, 1920—there appears an interesting article by M. Camille Flammarion entitled, Les Sciences Psychiques. The celebrated French astronomer expresses his belief that the answers to questions, manifestations of levitation, and other phenomena obtained by or through the agency of mediums are genuine manifestations of the existence of a force existing in the universe for which at present there is no name. He quotes what he wrote in 1906: "Psychical manifestations confirm that which we know from other sources—namely, that the purely mechanical explanation of Nature is insufficient and that there exists in the Universe something besides apprehended matter. It is not matter which rules the world; it is an element which is both dynamic and psychic." In another article written in 1888 he said, "The Universe is an intelligent, unknowable resultant of forces (dynamisme)." From observations which he has made at varying intervals from 1861 and onwards he concludes: (1) That gravitation can be counterbalanced by contrary forces; (2) that the human being is possessed of an invisible force which can move objects more or less heavy without being in contact with them; (3) that the levitation of heavy objects—for example, tables—can be brought about by the simple contact of the hands of experimenters whose wills are united in the desire to obtain such levitation; (4) still more, such movements can be obtained without any contact—for instance, a chair will move towards the experimenter at his wish; (5) answers may be obtained to questions, such answers being given by knocks corresponding to a conventional code of letters of the alphabet. He does not pretend to explain this force, he merely affirms its existence whether it be in ourselves or outside. As regards communications by knocks, he gives an instance which happened when he was present at a seance, when a long message was received of which we have only space to quote one sentence, "Liesnoc nob nu zevius." If the order of the letters is reversed this reads "Suivez un bon conseil." Another began as follows without any stops:—

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[1] Acta Medica Scandinavica, vol. lii., Fasc. III., 1919.

"Acmairsvnoouussevtoeussbaoinmsoentsfbiideenlteosuss."

Take every other letter and this reads, "Amis, nous vous aimons bien tous, car vous êtes bons et fidèles." M. Flammarion says that he can hardly suppose that this communication was given by trickery on the part of the medium, for how difficult it would be to do. It certainly would be, but after reading "The Road to En-dor"[1] we think that the ingenious Mr. Jones could have produced the same or a similar sentence. The communication which was delivered, beginning at the end, is especially interesting, as it may have been communications of this kind which gave rise to the indictment of the seventeenth-century witch-finders that witches said their prayers backwards. We can agree with M. Flammarion when he says that there is an unknown force in or at the back of the universe "with which our five senses only put us in very imperfect relation." If we read M. Flammarion rightly, it would seem to be the same as the stoic "anima mundi" or "mens divina," referred to by Virgil in the fourth Georgic and the sixth Aeneid. This force can communicate with us in divers fashions, amongst others by mediums, but in brain transmission this becomes difficult, as M. Flammarion allows, and is often completely altered (dénaturée). But as for the levitation of heavy bodies we think that the matter is still not proven.

RELAPSING PHLYCTENULAR KERATITIS IN CHILDREN.

RELAPSING phlyctenular keratitis in children is one of the most unsatisfactory conditions which the ophthalmic surgeon is called upon to treat, especially in hospital practice. That there is some connexion between these obstinate cases and tuberculous infection is highly probable, but exactly what this connexion is has never yet been clearly proved. The theory put forward by Mr. C. K. Wolff, of Amsterdam, in a paper on the Character and Treatment of Scrofulous Inflammations of the Eye in the February number of the *British Journal of Ophthalmology* is somewhat novel. He suggests that a patient subject to phlyctenular disease has formerly had in his eye a tuberculous process which, though cured by the natural power of resistance to the organism, has left the eye hypersensitive to the tuberculous poison. According to him the patients can almost always be shown to have tuberculous glands of the neck on the same side as the affected eye, and to complete his theory we only have to accept the hypothesis that tuberculous poisons are now and then mobilised out of the tuberculously inflamed lymph glands. Acting on this assumption, Wolff has attacked the infected cervical glands by extirpation with, on the whole, favourable results. However, since renewed inflammation of the glands occurred rather often he now prefers to treat them by X rays, and the effect of this treatment on the recurrences of phlyctenular disease has been decidedly favourable. The number of exposures employed in any particular case varied from two to ten. This method of treatment has only been tried by him since 1916, but it seems sufficiently promising to warrant the hope that we may hear more of it in the future.

A WELFARE MEDICAL SOCIETY.

THE work of successfully conducting an infant welfare centre is one of genuine difficulty. It not only demands a close acquaintance with many types of mother and many types of child, but there is also need of detailed knowledge of subjects which find no place in the present curriculum of medical schools. The literature of these subjects is perplexing, inasmuch as there appears to be no agreement even on points of fundamental importance, and there is little authoritative teaching. In view of all this a Society of Medical Officers of Maternity and Child Welfare Centres has been formed and will hold its first meeting on Friday, March 26th, at 5 P.M., at Bedford College, Regent's Park. A large number of medical officers in charge of centres have already joined the society in response to an invitation which was issued by circular. At the first meeting a draft constitution will be presented and a tentative programme for meetings in London and in various centres in the country. It is hoped that any medical officers in charge of centres who have not received an invitation to join the society will communicate with the secretary, Miss J. Halford, National League for Health, Maternity, and Child Welfare, 4, Tavistock-square, London, W.C. 1. It is of great importance that the work now being inaugurated at scores of new centres should not become stereotyped and commonplace, and we believe that this can be most surely prevented by the interchange of thought for which this new society offers facilities.

PROBABILITY-DIAGNOSIS IN MALARIA.

THE first paragraph of Colonel M. D. O'Connell's letter on the Diagnosis of Malaria, which appears in this issue of THE LANCET, would, we think, carry conviction to most minds of the value of microscopical diagnosis in malaria in the case of armies in the field, although Colonel O'Connell himself seems to remain unconvinced. He states a case against this method, basing it on two grounds: (1) that parasites may be present in the blood of individuals who display none of the ordinary symptoms of acute malaria; (2) that active malaria may be present notwithstanding failure to find parasites in the blood. In illustration of his first point he quotes the well-known fact that in countries where malaria is endemic the blood of native children, apparently in good health, may swarm with parasites. But this occurs in the case of natives only, and has no bearing on the significance of a heavy blood infection in adults who are residing as foreigners in the district. In the latter case the blood infection always forms a part of the picture of an acute malarial attack. As regards Colonel O'Connell's second point, it is true that in certain forms of malaria there may be periods in which no parasites are demonstrable in the peripheral blood, but this is no argument against blood examination; on the contrary, it is an argument in favour of repeated blood examination. If this is done proof will be forthcoming sooner or later of the true nature of these elusive forms of malaria, a proof which is often unattainable by any means other than microscopic examination of the blood. It is surely rather wilful to quote Sir Patrick Manson's experiment of 1900 as evidence against the routine use of the microscope in the diagnosis of malaria, whether under the conditions of active service or otherwise.

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[1] Reviewed in THE LANCET, Feb. 14th, 1920 (p. 389).

We print in this issue a case of toxic anæmia, recorded by Dr. J. G. Forbes and Dr. R. F. Lunn, and assumed by them to be post-malarial, although they failed to demonstrate the plasmodium in the patient's blood. The record of such a case might be held to bear out Colonel O'Connell's poor opinion of the value of blood examination. But in point of fact no one maintains that a positive blood film is invariable in all cases of acute malaria; if it were so, medicine would lose much of its interest for the inquiring mind. The film may be taken at the wrong time in relation to the pyrexia, or the patient may be under the influence of quinine; or (rarely) the activities of the parasite may so seldom extend to the peripheral blood that the chances of finding it there are very small. No single clinical or pathological test is infallible; but it would show a lack of perspective to focus the attention on a small group of exceptional cases, and on these to found an indictment against a test which was of proved value in the war areas where malaria was prevalent. In the case recorded there were only two negative blood examinations before quinine was given, the effect of which was promptly to reduce the temperature. Examination during the apyrexial period was likely to yield a negative result. The demonstration of parasites in the blood is, in fact, only one element in the diagnosis of malaria. Mathematicians would tell us that the result of examining the blood in malaria does no more than establish a probability-diagnosis. But in the ordinary affairs of life probabilities when they reach 90 per cent. are considered worth a wager, and the clinician is right in placing a high value on blood examination in malaria.

A CASE OF PLAGUE IN THE PORT OF LONDON.

THE Ministry of Health has been notified of the occurrence of a case of plague on the s.s. *Alps Maru.* The ship arrived in the Port of London from Japan and entered the Millwall Dock a fortnight ago. One of the crew fell sick the next day, and as he was suspected to be suffering from plague he was removed to the isolation hospital. The diagnosis of plague has now been confirmed by the bacteriologist of the Ministry from material obtained from the patient. The vessel has been removed to the Port mooring station for infected ships, and all necessary precautions have been taken by the Port Sanitary Authority to prevent the spread of infection.

THE BREAD POSITION IN FRANCE AND GERMANY.

THIS country may well be appreciative of the policy of the Food Controller and his scientific advisers, which resulted in the fact that during the war bread never once came under a definite rationing order. The nation was asked voluntarily to reduce its bread-eating, to supplement the diminished amount of carbohydrates thus entailed with other cereals or potato, and to give up highly milled flour. The nation replied right loyally to that paragraph of the King's proclamation issued on May 2nd, 1917, which ran: "And we do for this purpose more particularly exhort and charge all heads of households to reduce the consumption of bread in their respective families by at least one-fourth of the quantity consumed in ordinary times; to abstain from the use of flour in pastry; and, moreover, carefully to restrict, or, wherever possible, to abandon, the use thereof in all other articles than bread." Things happened differently in France and in Germany, and the bread position in these countries is still difficult, as is shown by the following excerpts taken from the *Economic Review* (Feb. 18th, 1920):—

FRANCE.

Bread and Grain Regulations.

France is to have no bread-cards, but bread is to be dearer. The following Order has been issued:—

Home-grown wheat will be bought from the growers at Fr. 73 per quint., but sold to the millers at Fr. 76, the price of imported wheat. The maximum price of flour will be Fr. 93 per 100 kg. The prefects will fix the price of bread in their Departments, having regard to the costs of flour, transport, and bread-making. A bread-ticket, giving the right to 400 grm. of bread a day at the present price, will be available for: (*a*) heads of families with at least 3 children, for each child under 16; (*b*) widows with at least 2 children, for each child under 16; (*c*) war pensioners with an invalidity of at least 50 per cent.; (*d*) the aged, infirm, and incurable drawing benefits under the law of 1905.

As from Feb. 20th wheat flour, pure or mixed, may not be used in the manufacture of fresh pastry. Millers may not sell wheat flour or flour made of the secondary bread cereals for other purposes than bread-making. People are reminded of the penalties for feeding animals on wheat, flour, or bread. (*Œuvre*, Feb. 4th.)

GERMANY.

Reduction of the Bread Ration.

A semi-official message to the *Berliner Lokal-Anzeiger* states that the delivery premiums have not improved the grain-supply as much as was hoped, and in consequence the flour ration must temporarily be reduced from 260 grm. to 200 grm. per day. (*Köln. Ztg.*, Feb. 3rd.m.)

This will entail a reduction in the bread ration from 2350 to 1900 grm. per week. (*Schles. Ztg.*, Feb. 3.m.)

Grave Situation in Munich.

According to a confidential statement, which has found its way into the Munich press, the supply of bread, corn, and flour in Munich will suffice only to Feb. 16th, and even before that date the bread-supply will give out. The town holds only 15,000 ctr. potatoes and 10,000 eggs. Butter and margarine are completely lacking. There is enough meat to supply 200 grm. weekly for four weeks. (*Köln. Ztg.*, Feb. 4.ii.)

The future of the general health of nations which had a markedly inferior supply of food during the war is still uncertain, but the effects of such restrictions, in which a limited allowance of good bread counts, will probably be active for many years.

THE VACCINE-ANTITOXIN TREATMENT OF DIPHTHERIA.

Dr. F. M. Wood has described[1] a vaccine-antitoxin treatment of diphtheria, which he has used with success, and which has been adopted by the Chicago Department of Health. In April, 1913, prior to the announcement of Behring's toxin-antitoxin method, this treatment was first used. A vaccine was made from a case of diphtheria, and a pure culture obtained. A vaccine of 300 to 500 million bacilli and 1000 units of antitoxin were simultaneously, but separately, injected into three children having diphtheritic membranes in their throats. By the third day the membranes had disappeared. Two more doses of vaccine of 500 million bacilli were administered at intervals of three days. On the tenth day cultures were taken and found negative. Dr. Wood has used the method repeatedly in the last six years with uniform success, but he advises caution. If the vaccine can be given before the disease has progressed more than four days, and an excessive amount of toxin has not formed, the initial dose may be 300 million bacilli. But if the disease has progressed more than four days, if membrane formation is excessive, and if tonsils, nares, and pharynx are involved, there is great toxæmia. It is then best to administer 100 million bacilli and 3000 to 5000 units of antitoxin, according to the severity of the toxæmia. Thus the dangers of pneumogastric paralysis may be avoided. The dose of vaccine may be increased to 300 million bacilli at the next dose and later to 500 million, as improvement suggests. The antitoxin may be repeated as required. Thus both the destruction of the bacilli and the neutralisation of the toxin are achieved. Dr. Wood claims the following advantages for this method: The production of toxin is stopped, the patient producing his own antitoxin from the time the vaccine is administered. The dose of antitoxin renders inert the toxins already formed and thus prevents paralyses and heart failure. By using the method in carriers the bacilli are destroyed and epidemics are stopped. It may also be used to immunise contacts. In cases of diphtheria the throat is freed from bacilli in 10 days, thus shortening the quarantine period and enabling children to return to school without danger to the others. Dr. Wood thinks that the ultimate result of this treatment would be the efficient control of diphtheria epidemics as small-pox epidemics are controlled by vaccination.

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[1] New York Medical Journal, Jan. 10th.

THE CEREBRO-SPINAL FLUID IN MULTIPLE SCLEROSIS.

Dr. J. E. Moore,[1] of Baltimore, describes the results of the examination of the cerebro-spinal fluid in 28 cases of multiple sclerosis under treatment at the Johns Hopkins Hospital. In 20 of the cases the clinical diagnosis was certain; in the remaining 8 it was doubtful. In the first group the Wassermann reaction was negative in all cases, both in the blood and cerebro-spinal fluid; in 8 cases there was a pleocytosis of more than 5 cells; and in 18 cases Lange's colloidal gold test was positive. In the second group the findings were the same, except for the gold test, which was positive in 3 cases and negative in 5. These figures show that the spinal fluid picture is fairly constant, and that, other things being equal, such findings are a strong argument in favour of a diagnosis of multiple sclerosis.

DEATH OF DR. JAMES EMERSON REYNOLDS.

CHEMISTS will remember Dr. J. Emerson Reynolds, who died suddenly at his residence in Kensington on Feb. 19th in his seventy-seventh year, most by his admirable series of researches on silicon compounds, his synthesis of thio-urea, and his conviction that the elements have come into existence one after the other in the order of the atomic weights, starting with the smallest. He regarded each atomic mass as representing a stable aggregation of the fundamental stuff, a primal "Urstoff"—the protyle of Crookes. Modern developments in scientific work are rapidly accumulating evidence in favour of Reynolds's views. Students of Dublin in the seventies, eighties, and nineties will learn with regret of the death of their old teacher, who taught chemistry in Dublin from 1873 to 1903. For the first two years of that time he was professor of chemistry in the school of the Royal College of Surgeons, and for the subsequent 28 in Dublin University. His image stands clear in many a medical man's memory as one of the most notable at the beginning of his student career. He was a clear and comprehensive lecturer, illustrating his words with well-chosen and perfectly arranged experiments which never failed to "come off." His researches gained for him the Fellowship of the Royal Society in 1880. In 1901 he was elected President of the Chemical Society. He qualified early in his career to practise medicine, but his bent was chemistry. He resigned the chair of chemistry at Dublin in 1903, and then left his native country for London.

THE RANGE OF GENERAL PRACTITIONER SERVICE.

AN important case has just been heard by the referees appointed by the Scottish Board of Health to adjudicate a dispute between the Glasgow Insurance Committee and the Local Medical Committee. The question for decision was—

> Whether the operation of suturing tendons of fingers is a service of a kind, which can, consistently with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill.

The referees were Mr. John Wilson, K.C., Dr. A. J. Campbell, and Mr. Frederick K. Smith, surgeon to the Royal Infirmary, Aberdeen. The Insurance Committee contended that the operation of suturing tendons of fingers was not one requiring special skill, but the referees held that the evidence of the distinguished surgeons called by the Medical Committee established a distinction between operations affecting tendons on the back of the hand and tendons on the front. The special risks and difficulties of suturing tendons in the palm was pointed out, and amongst others that—

> The sheath which encloses the palmar tendons may be the means of carrying septic material proximally into the palm or into the forearm, and, moreover, the proximal end of the severed tendon being subject to retraction into the sheath may involve an operative enlargement of the original wound. Further, the conditions existing in the patient's dwelling or in another dwelling house under which the general practitioner would generally have to operate, would increase the risk of sepsis, especially when the fingers have been seriously crushed.

Witnesses for the Medical Committee were clear that in Glasgow it was the general rule to have operations such as that in question performed in one of the hospitals. On the evidence before them the referees, without pronouncing on the skill required in the particular case, decided that no general or absolute rule could be laid down to the effect that suturing of tendons of a finger was a service of a kind which could, consistently with the best interest of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill.

Professor F. de Lapersonne, assisted by Professor Terrien and Drs. Velter, Prelat and Mombrun, will conduct a revision course in the ophthalmological clinic at the Hôtel-Dieu, commencing on May 11th and continuing every day entil the end of June. The fee is Fr. 100 and the number of places limited to 40. Application should be made to the Secretariat of the Faculty of Medicine, Paris.

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[1] Archives of Internal Medicine, Jan. 15th, 1920.

MEDICINE AT TRISTAN DA CUNHA.

By H. St. C. Colson, M.B., B.S. Lond.,
SURGEON LIEUTENANT-COMMANDER, R.N.

I HAD the opportunity last autumn of landing at Tristan da Cunha, a small island in the South Atlantic, 1200 miles from the nearest land. There are no doctors, lawyers, clergymen, police, or money on this island, and I believe the last medical report was written in 1902. My stay on the island only lasted a few hours, but I am enclosing a short report, thinking it will be of interest to readers of THE LANCET.

General Features.

Tristan da Cunha, a British possession, is an island mountain of volcanic origin in the South Atlantic Ocean, latitude 37–5–50 S., longitude 12–16–40 W. It is circular in form, with a circumference of about 21 miles, diameter about 7 miles, height 7640 feet. Volcano extinct during historic times. The island was discovered by the Portuguese navigator Tristão da Cunha in 1506, and was occupied by the British in 1816. The nearest inhabited land is the island of St. Helena, 1200 miles to the north. The inhabitants of the island number 111, and consist of 22 families living in 18 houses. Although the majority of the people are quite white, some of them are slightly coloured. This colour is fast dying out and originated from five women who were imported into the island from St. Helena in 1826 and the wife of Corporal William Glass, who was a Cape coloured woman.

The people appear to be clean and healthy. The clothing of the women is simple, consisting of a blouse and skirt and a handkerchief tied over the head. That of the men is varied, probably due to the fact that most of their clothes are obtained from passing ships. Their shoes are made of bullock hide and are very primitive and only last a few weeks. The islanders are abstemious, no alcohol being consumed on the island, and some of the men do not smoke. This seems to be a case of necessity rather than choice, as men visiting the ship were willing to take refreshment in the form of spirits or wines. Their speech is slow and very broad, and they have only a limited vocabulary. Some of their words are abbreviated by a syllable being left out, but this is probably due to ignorance in pronunciation.

Their houses are scattered over the settlement, and are built of thick stone walls and roofed with tussock grass. They consist of one large room, divided by wooden partitions into a sitting-room, a bedroom, and a kitchen. In the majority of houses the sitting-room has a large open fireplace. Most of the houses are provided with glass windows which do not appear to open. The doors are divided into a lower and upper part, presumably for light and ventilation. Penguin oil is used for lighting the house after dark, giving a small, bad light. The sanitary arrangements are primitive, a bucket of sand being used and the contents are carried away and thrown into the sea. The water-supply is derived from a stream which has been diverted slightly from its natural course to run through the settlement. Water needed for drinking and washing purposes is taken from this stream as required.

The produce of the island consists of beef, mutton, pigs, fowls, geese, eggs (poultry and sea-birds'), butter, and potatoes. The potatoes are made into a coarse kind of flour, but this is only used when other flour is unobtainable. Fish are caught by the inhabitants to supplement and vary their food. Other necessaries, such as flour, sugar, and salt, are obtained from passing ships by barter.

There are meteorological instruments on the island, but no records have been kept since the visit of Rev. — Barrow, who kept them from Feb. 15th, 1905, to March 31st, 1909.

Extract from Mrs. Barrow's book—

Max. temp., Feb. 15th. 1905–August 16th, 1908, 77·8 F.
Min. ,, ,, ,, ,, ,, 37·9° F.

The rainfall in 1908 was 64·84 inches.

General Health of the Inhabitants.

This seemed to be good. The oldest inhabitant was Betty Cotton, aged 89 years, and except for some slight failure of vision was perfectly well. There have been six deaths reported in the last eight years—

Andrew Repetto. 9.2.11. Aged 44. Disease of chest.
Lucy Green. 1.8.12. Aged 63. Insanity.
Albert (? Alfred) Green. 1.10.15. Aged 30. Insanity.
Eliza Hagan. 11.10.15. Aged 75. Old age.
Joseph Fuller Glass. 25.8.15. Aged 47. Fever.
Elizabeth Glass. 25.8.16. Aged 33. Disease of womb.

No further information respecting the cause of death could be obtained. Epidemics are practically unknown, but after the visit of a ship the islanders suffer from "colds." The recent influenza epidemic was not experienced in the island. There appears to be no venereal disease among the islanders. Three women were pregnant, and expected to be delivered shortly. They are usually assisted by one or more of the married women. Minor complaints were those of chronic rheumatism, of which two cases only were seen in old people, failure of eyesight, asthma, lumbago, and hernia.

Interesting Cases.

The following cases were of most interest:—

Benjamin Louis Swain, aged 50.—This man had both upper extremities deformed from birth. His mother, Mrs. Susan Swain, is 70 years of age, and active and well. His four brothers and four sisters are normal. Deformity: Right arm. There is a small humerus articulating normally at the shoulder-joint, and much enlarged at the lower end (? fused carpus). There are two metacarpals articulating with the lower end of the humerus with two fingers, each having two phalanges. The left arm consists of a humerus smaller than that of the right side, which does not appear to articulate at the shoulder-joint. The lower end of the humerus appears to be prolonged into an ulna, but no joint is present. There are three metacarpals attached to the lower end of this, with thumb and two fingers attached. Both his arms and fingers can be used to a limited extent for picking up objects, &c. He also suffers from attacks of syncope, which can be accounted for by a degree of aortic regurgitation which is present.

Christopher Green, aged 14. His mother stated that he had not been able to speak since he was born. The boy, described by the islanders as simple, seemed an idiot. He was very shy and laughed foolishly on being spoken to, and he was only able to articulate very rudimentary sounds. There was some fibrosis of the centre of his tongue, but this did not seem sufficient to account for his lack of speech. His mother, prior to his birth, had been lost on the mountain for 24 hours, and had subsequently suffered from pains in the head and attacks of syncope. Except for his mental condition the boy seemed well grown and physically fit.

William Rogers, aged 28. This man complained of being unable to see at twilight at all, although his sight was normal in the day and by artificial light. There was no time to examine his eyes.

Mary Glass, aged 81. This woman suffered from chronic rheumatism in her right foot. She also had congenital deformity of the thumb of her right hand, the terminal phalanx being replaced by two small thumbs of two phalanges each.

Florence Swain, age 16. This girl fell down the mountain nine years previously and fractured both legs, which were "set" by the late Andrea Repetto, one of the inhabitants. He also amputated two toes of her left foot which were badly crushed. She had scars of fractures in both legs and her left foot is much deformed and scarred, causing difficulty in walking.

It will be noticed that two cases of insanity are shown among the deaths for the past seven years, and also that one boy, Christopher Green, is an idiot. These might suggest that there is an in-breeding in the island, but there is nothing to show that this is the case. The colony started in 1816 when a garrison was sent by the Cape Government to occupy the island. In 1817, when the garrison was withdrawn, three men asked to remain, and the chief of these was Corporal William Glass, who had with him his Cape coloured wife. Later, three men were shipwrecked on the island and five men, being bachelors, asked the captain of a whaler to bring them wives from St. Helena. This was done and a widow (with four children) and four other women were imported. Twenty years later Peter Green, a Danish sailor, was shipwrecked on the island, and in the next decade Rogers and Hagan came from America and, in the early "nineties," Repetto and Lavarello—two Italian sailors—were shipwrecked there. The second, third, and fourth generations are still living in the island and there is no evidence of intermarriage.

Mrs. Lucy Green, who was reported to have died at the age of 75 from insanity, was the daughter of Peter Green (the Danish sailor) and one of the four daughters of the coloured widow who came from St. Helena. The registered cause of death was probably inaccurate. There was no doctor present, and a delirious condition might easily be taken by the islanders for insanity. The case of Albert Green, also reported to have died from insanity, is probably similar to the above. Christopher Green was the grandson of Peter William Green, one of the original settlers, and no intermarriage could possibly have taken place in this family. The two cases of congenital deformity reported above showed no signs of intermarriage in their families.

Medicine was given to those islanders who were in need of it. No supplies of medicine were left on the island. A ship of the Houston Line left medicines for the use of the inhabitants in 1916, but they were thrown by the islanders into the sea, as they did not know how they should be used and feared to be poisoned.

I vaccinated 38 children at the request of their parents, of whom the eldest was 15 years of age.

H.M.S. *Yarmouth.*

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Extinction of the Typhus Epidemic in Paris.

THIS little epidemic was confined to the seminary of Saint-Sulpice, which serves to lodge refugees, among whom there happened to be Polish workmen infected with the disease. They are now convalescent, but the incident has demonstrated a defect in the organisation of hygiene in Paris. Special personnel was insufficient for the disinfection of the rooms, and this could only be carried out with the help of soldiers. The civilian services possess no single transportable stove. Beside this, in consequence of the house shortage, no place could be found to isolate the other inhabitants of the seminary. Dr. Roux, director of the Pasteur Institute, has renewed a suggestion made by him long ago to create a kind of lazaret on an open space near Paris with cement floors, on which hutments could rapidly be erected in case of need from material stored in adjacent hangars. In this way an emergency might be tided over in case of epidemic or flood.

The Rising Birth-rate.

The campaign goes on for increasing the accommodation for lying-in women. The fifth commission of the municipal council has voted an immediate credit of 100,000 francs in order to subsidise the midwives of benevolent institutions at a figure of 50 to 70 francs for each case of labour conducted at home, and to allot to each parturient woman an assistance of 50 francs. It is further proposed to cover an average fee of 20 francs for each visit paid at the home by the doctor of the Assistance Publique. M. Mesurier, director of the Assistance, stated that he had been able to find 300 additional beds for parturient women: 90 at the Hôtel-Dieu, 40 at St. Antoine, 50 at the Lariboisière, 100 at St. Louis, and 20 at the Edith Cavell Hospital.

The Schick Reaction.

M. Jules Renault has communicated to the Academy the result of his observations on 381 cases in which he has used the Schick reaction with diphtheria toxin. The details of the method were given in your issue of Jan. 24th (p. 192). If the reaction is positive the subject is regarded as receptive for diphtheria, if negative he is refractory or immunised in advance. The reaction may therefore be of great importance, during the course of an epidemic of diphtheria, in determining the subjects likely to contract the disease, when preventive serum can be given. Of course the reaction does not do away with the necessity of searching out diphtheria carriers who may be found as much among refractory as receptive subjects.

Chemo-therapy of Morphinism.

MM. Brissemoret and Challamel suggest a new method of "demorphinisation" which should be of value if confirmed. In morphinomaniacs a daily dose of 10 to 20 cg. of berberine combined with helenin, a stearoptene extracted from elecampane, is given. The authors claim to create thus a euphoria equal to that of morphine itself, while the two substances named are regarded as completely inoffensive.

The School of Social Effort "pro Gallia."

A school for social effort has just been inaugurated at Paris in the Musée Social, 5 Rue las Cazes, under the presidency of M. Jules Siegfried, deputy for le Havre. This school is designed to play an important rôle in the new and more methodical organisation of society. It plans to give social education and instruction to those who, more familial than professional by training, have decided to adapt themselves to the needs of the moment. The special aim is to provide a qualified personnel for social services, of which the number increases every day, such as children's nursing, school nursing, district nursing, and health visiting. Those who propose to be secretaries of welfare centres, directors of physical education, heads of orphanages, holiday homes, child-gardens, and so forth, will also receive training.

The late Dr. Triboulet.

Dr. Triboulet, who has just died at the age of 56 years, was physician to the Hôpital Trousseau, and, like his father before him, had a great reputation in pediatrics. His death was hastened by the loss of his eldest son, killed as a flying pilot during the war. Along with Lucas-Championnière he was the promoter of the visits of French doctors to England, and had organised medical travel between the two countries. At the last reception to English doctors in France he made a genial president, and many were the friends whom he counted in London.

Feb. 24th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Strike of Clinical Assistants.

THE present conditions of life in this country have resulted in a strike of an unusual character. Hitherto only a small proportion of the hospital medical staffs were paid. The house physician and two or three clinical assistants received a salary on a moderate scale; all other posts were honorary. Their incumbents had a vast opportunity for learning, but were not directly remunerated for their hard work, which was nevertheless essential for the working of the institutions. With the change produced by the catastrophal devaluation of our money, these men could no longer subsist on their mostly very limited means. They demanded a salary as well as the right to obtain for a modest sum their meals at hospitals or clinics. This being refused by the Government, the medical faculty, to whom they applied for help, took the matter up, and after further futile endeavours to come to an understanding the medical strike was proclaimed on Feb. 1st in the clinics. The strike only lasted two hours. The demands were not granted in toto, but they agreed to await further arrangements, having the sympathy of the public, who were anxious to see this question settled in favour of the physicians. This strike is the first instance, in this country, of the adoption of such means to further the economic position of the medical profession.

Increase of Payment for University Appointments.

By an order of the Home Office the fees of the ordinary and extraordinary professors of the Austrian universities have been raised in such a degree as to approach the salaries of other persons in similar standing in civil service. The ordinary professor will now get from 14,000 to 26,000 kronen a year, according to the length of service, besides the extra payment according to the "index" of prices, as published half-yearly by the Board of Commerce, calculated on the average prices of the chief articles of food. At present this extra payment amounts to 21,000 to 36,000 kronen a year in case of the ordinary professor. The extraordinary professor, who has no regular clinic, gets a salary of 10,000 to 18,000 kronen a year, with an additional 14,000 to 24,000 kronen, based upon the index. Part of the fees paid by the students will in future belong to the teacher. A minimum of 600 kronen is guaranteed to the latter, but if the fees exceed the sum of 5000 kronen the teacher gets only half of the surplus. Another feature of the new order is regular payment of the docents, or younger scientists, who render invaluable help by their lectures. They are now to receive 6000 to 12,000 kronen a year. The students now pay three times as much as before for their studies, 6 kronen per hour per week, and in the medical faculty 60 kronen per half year is charged for the use of apparatus. Remembering that the buying value of one English pound sterling is 900 kronen at present here, the proper value of these salaries will be clear.

Financial Difficulties to Scientific Research.

In the Austrian Parliament the Minister of Health, Professor Tandler, pointed out the menace to the existence of scientific institutes owing to the immense rise in the price of materials. Chemistry is worst off now. Reagents and even the simplest apparatus are 50 to 300 times dearer than in 1914, if they are obtainable at all. Students are asked to procure most chemicals at their own expense. Training under such circumstances becomes illusory. In the experimental and sero-pathologic institutes animals are hardly obtainable, for they are more urgently wanted as food. A rabbit costs now nearly as much as a horse did in 1914. The horses, indispensable for producing diphtheria antitoxin, now cost 16,000 to 24,000 kronen each. The food for the horses kept in the Vienna Sero-Therapeutic Institute went up 420 times. The drugs are similarly expensive. A kilo of cocain, costing 300 kronen five years ago, now commands 55,000 kronen; morphia is in much the same case. Ether pro narcosi costs 400 kronen, pure iodine 5,000 kronen. A microscope costs 20,000 kronen, simple scales cost 4000, scientific journals and books cost between 500 and 2000 kronen per year. As the earning capacity of the bulk of the population has not gone up in the same proportion, neither the Government nor the individual student or worker is able to keep abreast with the times.

Influenza and Lethargic Encephalitis.

A new wave of influenza has been noticed in Vienna, milder than the last one in 1918–19. It is characterised by muscular weakness and bronchial affections, with frequent involvement of the accessory cavities of the nose and the middle ear. As the majority of the population seem to be immunised from last year, the epidemic is not very widespread. A series of cases of encephalitis lethargica noticed in the Clinic of Nervous Diseases could not be brought into definite relation with the incidence of influenza. Measles, now very prevalent, shows features nearly related to encephalitis, for the constant desire to sleep is marked, and the children suffer much from after-effects.

Vienna, Feb. 15th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Farm School for Deficient Children.

AT a meeting of the Budapest Board of Education, called to arouse public sentiment in favour of establishing a farm-training school for mentally deficient children, it was shown that 3 per cent. of the children in the city are imbecile in some degree, up to complete idiocy, making a total of about 800 at present. Other points brought out were that nine-tenths of the mental defectives are uncared-for children who cannot keep up in regular schools, notwithstanding the employment of special rooms for backward children; that these children largely recruit the criminal and pauper classes; that it is cheaper for the State to care for these patients in an institution, which can be made largely self-supporting than to support them as criminals and paupers; and that heredity is the great cause of mental deficiency. It was urged that mentally deficient children be differentiated from simply dull children by modern psychological tests, and that these children be kept for life in a suitable public farm institution, where they would be happier and more useful than at home, and would be prevented from propagating their kind.

The Control of Mineral Waters.

To put an end to the numerous abuses in the sale of the so-called mineral waters the Superior Council of Hygiene has just decided that (1) "mineral water" is a water to which therapeutic properties are ascribed; it should be recognised as such by the Pharmacological Board of the University, authorised by the Government, and exploited under the conditions specified by the official organisation; (2) "natural mineral water" in bottles is labelled so that it may be distinguished from other bottled waters, especially table waters; the employment of descriptive terms implying therapeutic properties is to be forbidden.

Curability of Progressive Paralysis since the Salvarsan Era.

Dr. Kenéz, speaking at the recent conference of Budapest psychiatrists, said he did not think that the recent achievements in serology and the introduction of salvarsan had been of much service in the diagnosis and treatment of progressive paralysis. In fully 24 per cent. of the cases, he said, we may anticipate remissions in the course of the disease during the early stages. A patient entering on a phase of remission should not be reported as "recovered" under the drug that he happened to be taking at the time. If the weight begins to increase, a suspicion of a remittent phase is justified. He further emphasises the point that true syphilitic processes may co-exist with the changes responsible for the paralysis, and consequently benefit will follow as the former subside under specific anti-syphilitic measures.

Punctured Wounds of the Diaphragm.

Dr. Cornea, who had a huge surgical hospital in Innsbruck during 1917 and 1918, reports his experiences with stab wounds of the diaphragm. He attended only 45 similar cases out of 34,627 surgical patients. Only 17 of his cases were without concomitant injury of other internal organs. The wound in the diaphragm was not diagnosed in one-third of the cases; in 7 cases the stab had been received in the fourth and fifth interspace. The danger of diaphragmatic hernia is so great, as also the possibility of unsuspected injury of other organs, that expectant treatment is contra-indicated. In case it proves impossible to suture the wound in the diaphragm, the edges may be sutured to the costal pleura, as Dr. Frey in Vienna has suggested. This prevents hernia and also the danger of secondary infection of the pleural cavity.

Restoration of the Nose.

This same surgeon reports his experiences with rhinoplastic operations; in three of them he made the new nose out of the soldier's fourth finger, as Wolkowitsch advised in 1910. He performed rhinoplastic operations also with other methods, his cases numbering 37. His experiences with the Wolkowitsch method encouraged also other military surgeons to work on this line, as also with the Italian method of rhinoplasty which was applied largely before the war.

Admission of Patients to Public Hospitals in Hungary.

On account of the immense number of unemployed the hospitals are crowded with feigners, who seek food and shelter there. This fact has induced the Board of Public Hygiene, on the recommendation of the Medical Faculty, to limit admission to university hospitals and public hospitals to those whose admission is provided for by statute: students in actual attendance at the University, emergency cases, and patients sent to the hospital by a legally qualified physician. All other persons seeking admission to the hospital must make affidavit that they are not able to pay the ordinary charge of a physician. The abuse of the facilities of the hospital has not been extreme, but has been sufficient to justify this action of the Board of Hygiene.

Jan. 20th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

New Health Bill and British Medical Association.

THE Health Bill introduced by the Victorian Government has been passed by both legislatures, and the new Commission will be appointed at a quite early date. The Premier has now introduced a clause which renders it possible for medical officers of health appointed under the Act to attend members of lodges and their families, either by agreement made by the Government or by a municipality. There was no discussion of the possible position if the British Medical Association disagreed. Yet the first difficulty in such a provision will be to fill the positions. If this is done in opposition to the Association there are obvious rocks ahead in the way of administration, for it is no easier for a medical man than anyone else to serve two masters, and the Association will not allow its members to accept positions unless at its own rates. The members of the Returned Medical Officers' Association have also signified their intention of not applying for these positions.

Mask Wearing in Sydney.

When the compulsory wearing of masks as a protection against influenza was first introduced in Sydney, Dr. Fox, a practitioner at Glebe, refused to comply and was arrested. He subsequently entered an action against the authorities, who had refused to proceed with their own action. He was awarded £250 damages.

Curious Double Fatality.

An unusual occurrence has occupied the public attention in Melbourne. A female patient went to a suburban dentist to have a decayed tooth extracted. An excited call was made by the operator on the telephone for medical assistance as the patient had collapsed. A medical man was at once in attendance, but found on arrival that the patient, a young widow, aged 32, was dead, and the dentist, who was lying in another room at the point of death, died in a few minutes. The autopsy showed that the patient had apparently died of heart failure following the injection of a local anæsthetic into the gum around a tooth, which was not extracted. The surroundings indicated that the dentist had made attempts to revive the woman and then in a sudden paroxysm of alarm had himself taken poison in the shape of a solution of cyanide of potassium. A doctor who was called stated that the dentist had been under treatment for some weeks suffering from nervous depression.

Radium Burn.

Dr. L. J. Clendinnen, a well-known specialist in Melbourne in radiology, was recently sued for damages as the result of the application of radium. The patient was a young women employed as a clerk who suffered from a corn on the sole of one foot. She consulted a surgeon, who advised radium should be tried. Radium was applied in a private hospital by Dr. Clendinnen. Thereafter the foot became painful and ulcerated, and it was alleged that the doctor did not see it again, and declined to visit her when requested. Several other practitioners were consulted, and the patient was laid up for some months. For the defence numerous medical men gave evidence that in their opinion the radium had been properly applied, and there was no permanent damage resulting to the foot. The jury gave a verdict for the plaintiff, and awarded £250 damages. Dr. Clendinnen was subsequently tendered an expression of sympathy by many of his colleagues.

Professorial Chairs.

Dr. A. E. Mills has been appointed to the professorship of medicine in the University of Sydney. The vacancy as professor of pathology in the University of Adelaide created by the retirement of Dr. A. Watson has been filled by the appointment of Dr. J. Burton Cleland, who resigns his post as chief micro-biologist to the New South Wales Government. Both the new professors are graduates of the University of Sydney.

Commonwealth Public Health Service.

It is announced that the Federal Government intends to proceed with the establishment of a Federal Health Department in addition to its quarantine activities. All the States have approved the proposal, but it is yet doubtful what legislative powers are required. At present it is not likely that more will be attempted than the encouragement of research and the perfecting of statistical and other information between the existing State Departments.

Melbourne, Jan. 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

India and Yellow Fever.

THE decision of the Government of India to appoint a committee to report on the measures which may be necessary to prevent the introduction of yellow fever into that country directs attention once more to the importance of creating a strong Department of Health. The problem would have been taken in hand long ago if a well-organised department of public health had existed. Seven years ago an official report was published which opened with the following statement: "Yellow fever has not appeared in India, but the abundant presence of the mosquito *Stegomyia fasciata*, which transmits it, the susceptibility of the population, and general conditions in the chief seaports are very favourable to its existence and spread, and it is believed that the introduction of the virus would be followed by devastating epidemics which would be exceedingly difficult to control." It requires no special knowledge to grasp the significance of this announcement, which came ten years after Sir Patrick Manson had directed attention to the possibility that the opening of the Panama Canal might eventually lead to the introduction of yellow fever into Asia.

General Health of the United Provinces.

The severe epidemic of influenza last year had an injurious influence on the general health of the population, and greatly interfered with the normal activities of the medical and sanitary authorities. In the United Provinces the latest provincial report on vaccination shows that influenza was mainly responsible for a decrease of 298,997 in the number of primary operations. In the districts wherever the disease broke out in an epidemic form vaccination had to be temporarily stopped, and vaccinators were supplied with medicines and employed in perambulating medical work. Also a considerable proportion of children were rendered unfit for vaccination by the disease. Plague, cholera, and relapsing fever must also be held partly responsible for the decrease in vaccination. Revaccination returns showed an increase of 34,176 over the previous year's figures, due to the large number of operations following various outbreaks.

War Gratuity of Civil Surgeons.

It is notified that, in the case of officers of the Indian Medical Service, service in civil employment will not count as service qualifying for the grant of war gratuity.

Red Cross Activities in Afghan Operations.

In a report to the Commander-in-Chief the chairman of the Indian Red Cross states that the Red Cross started operations as soon as the news of the outbreak of hostilities was received, and issued orders for supplies on a large scale to be sent up from the Bombay depôt. It also took steps to make available at once supplies in the depôts in Lahore, which were equipped on a 500-bed basis, and Rawalpindi, where the stores were on a 300-bed basis. Depôts were opened at Rawalpindi, Peshawar, Kohat, Bannu, and Quetta, and the Red Cross authorities were able at an early date to appoint

Assistant Commissioners to the charge of these depôts. In addition, subdepôts were opened at Tank and Dera Ismail Khan. For the Murree hospitals the Red Cross representative was Lady Kemball, who undertook all work in connexion with these hospitals, and established a separate depôt at Kuldana. The system pursued by the Red Cross was to instruct its Assistant Commissioners to make themselves acquainted with the needs of the hospitals, field ambulances, and transport stations in their areas, and to forward to Simla an indent of articles necessary to keep their depôts supplied with materials required. Headquarters provided them with cash for local purchases. Indents from hospitals were, as a rule, countersigned by the A.D.M.S., but this rule was never enforced with any rigidity, and very large supplies were made on the direct request of the officers commanding hospitals.

Mortality from Influenza.

There has been an increase in the mortality from influenza in Karachi, and also in Bihar and Orissa. In Bengal and Madras the mortality is diminishing. In other parts of India the disease shows signs of spreading, and the cases appear to be of a mild type.

URBAN VITAL STATISTICS.

(Week ended Feb. 21st, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 15·3 to 17·4 in the four preceding weeks, fell to 16·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual rate was 17·9, or 0·5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·9 in Darlington, 7·0 in Eastbourne, and 8·0 in Barrow-in-Furness, to 23·9 in Cambridge, 24·8 in Hastings, and 27·3 in Bootle. The principal epidemic diseases caused 408 deaths, which corresponded to an annual rate of 1·3 per 1000, and comprised 158 from measles, 109 from whooping-cough, 71 from diphtheria, 53 from infantile diarrhœa, 11 from scarlet fever, 4 from enteric fever, and 2 from small-pox. Measles caused a death-rate of 1·6 in Leeds, 1·8 in Lincoln, 2·3 in St. Helens, 2·8 in Hull, and 3·8 in Gloucester and in Wigan; and whooping-cough of 1·6 in Birkenhead and 1·7 in Edmonton. The fatal cases of small-pox belonged to Poplar and East Ham respectively. The deaths from influenza, which had been 66, 98, and 109 in the three preceding weeks, further rose to 161, and included 37 in London, 19 in Birmingham, 15 in Liverpool, and 7 each in Wallasey, Manchester, and Leeds. There were 2415 cases of scarlet fever, 2000 of diphtheria, and 2 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2459, 2010, and 3 respectively at the end of the previous week. The causes of 47 deaths in the 96 towns were uncertified, of which 16 were registered in Birmingham, 6 in South Shields, 5 in Liverpool, and 4 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 15·9, 14·7, and 14·7 in the three preceding weeks, further fell to 14·2 per 1000. The 290 deaths in Glasgow corresponded to an annual rate of 13·6 per 1000, and included 4 from measles, 3 from whooping-cough, and 2 each from diphtheria and infantile diarrhœa. The 84 deaths in Edinburgh were equal to a rate of 12·8 per 1000, and included 2 fatal cases of diphtheria.

Irish Towns.—The 131 deaths in Dublin corresponded to an annual rate of 16·5, or 1·0 per 1000 below that recorded in the previous week, and included 3 each from measles and infantile diarrhœa, 2 from whooping-cough, and 1 each from scarlet fever and diphtheria. The 144 deaths in Belfast were equal to a rate of 18·2 per 1000, and included 9 from measles, 6 from whooping-cough, 2 each from enteric fever and scarlet fever, and 1 from infantile diarrhœa.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The Honorary Fellowship of the Society of Medical Officers of Health has been conferred on Brigadier-General Sir William Heaton Horrocks "in recognition of his invaluable services as chief of the Army Sanitary Department throughout the Great War," and on Dr. Henry Edward Armstrong, formerly medical officer of health for Newcastle-upon-Tyne, "for his long and distinguished services in connexion with public health administration and the advancement of sanitary science."

Correspondence.

"Audi alteram partem."

MEMORIAL TO OFFICERS AND MEN OF THE R.A.M.C. WHO FELL IN THE WAR.

To the Editor of THE LANCET.

SIR,—May I venture to bring to the notice of any of your readers, who may be unaware of the active prosecution of the above project, the following particulars.

A Committee representing every branch of the R.A.M.C. has been formed under the presidency of the Director-General Medical Services. This Committee has decided to erect a memorial bearing the names of all officers and men who fell during the war, and place this upon a prominent site in London, and if funds permit to erect replicas in Edinburgh and Dublin. The monument will stand in honour of the entire profession, and the project should also appeal to the many who received help at its hands in the hour of strenuous need. A sum of some £10,000 has been already collected by army commands, but it is estimated that at least £30,000 will be required if the monument is to be made worthy of the men to whose honour it is to be dedicated.

Subscriptions may be sent to army commands, or direct to the treasurers of the fund, Messrs. Holt and Co., 3, Whitehall-place, S.W. 1, marked R.A.M.C. War Memorial Fund.—I am, Sir, yours faithfully,

Wilton-place, S.W., Feb. 20th, 1920. G. H. MAKINS.

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 21st Dr. Charles Box gives reasons for his belief that a certain series of cases of scarlet fever were not cases of rubella, and he says I asked him for these reasons. If he will be so good as to look at my letter again he will see that I did not do so, but that I did ask him to indicate the points which made him certain that none of them was rubella. His letter in your issue of Jan. 31st not only stated his belief but asserted his certainty. Dr. Box admits he would be the last to assert that the differentiation of mild scarlet fever from rubella is always possible, and I do not suppose he intends to maintain that it was possible in each one of the series referred to. Yet in referring to rubella he goes so far as to say that not a single case of this disease occurred in his wards. Now is it possible to say this and yet admit inability (as we all do) to differentiate in some instances?

Dr. Goodall's statement that rubella has not been prevalent in London lately is in no part answer to my query, as Dr. Box seems to consider; and it by no means follows that a case of rubella admitted into a scarlet fever ward results in an outbreak of that disease, though it often does. It is true rubella has not been epidemic of late in London, but I take it Dr. Goodall is only speaking of his own hospital when, in referring to outbreaks of rubella in wards, he says: "Such untoward results are not happening." As a matter of fact, I have had several wards in quarantine for rubella this winter, and have one now. Dr. Box's additional arguments in no way show that not one of his cases was rubella. I am, Sir, yours faithfully,

FREDERIC THOMSON.

North-Eastern Hospital, Tottenham, N., Feb. 21st, 1920.

To the Editor of THE LANCET.

SIR,—In connexion with this question raised by Dr. C. R. Box in THE LANCET of Jan. 31st the following facts may be of interest. Amongst 148 cases admitted as scarlet fever to the Borough Isolation Hospital, Ealing, from June, 1919, to January, 1920, inclusive, there have been eight cases which relapsed. The relapses all occurred amongst the 32 cases admitted during November. The particulars of these cases are set out in the following table.

No. of case.	Age.	Sex.	Admitted.	Relapsed.	Interval.
1	7	M.	Nov. 2nd.	Dec. 3rd.	31 days.
2	32	F.	,, 4th.	Nov. 24th.	20 ,,
3	3	M.	,, 10th.	,, 28th.	18 ,,
4	6	M.	,, 11th.	Dec. 18th.	37 ,,
5	6	M.	,, 11th.	Nov. 18th.	7 ,,
6	7	M.	,, 13th.	Dec. 29th.	46 ,,
7	5	M.	,, 17th.	,, 21st.	34 ,,
8	6	F.	,, 28th.	,, 23rd.	25 ,,

The average daily number of cases of scarlet fever in hospital during November was 43, and during December 32, nursed by the same staff in two wards served by a common kitchen.—I am, Sir, yours faithfully,

Ealing, W., Feb. 23rd, 1920. R. P. GARROW.

THE INFECTIVITY OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I think I should answer the letters written to THE LANCET since the publication of my lecture on Pulmonary and other Forms of Tuberculosis in your issue of Jan. 24th. These letters were written by Dr. E. Ward, Dr. Oscar M. Holden, and Dr. J. Fairley, who are, or have been, tuberculosis officers. I will not endeavour to answer all their criticisms.

With regard to Dr. Ward's letter, I am glad to find that both he, as well as the other two medical men, agree that we have failed in our treatment of tuberculosis. The sanatoriums and sanatorium methods are not doing what they were said to do. Dr. Ward complains, as each of the other two writers has complained, that not enough is done to separate infective people from others who appear to be healthy. I agree most thoroughly that, if it was proved up to the hilt that the infection by the tubercle bacillus in all cases, or in the majority of cases, or in a goodly number of cases, could be originated at any stage in life after childhood by infection from a tuberculous subject—such as is the case in measles, whooping-cough, and diphtheria—then segregation should be carried out, always remembering that the consideration shown for the infected subject, as sketched out by Dr. Fairley, is duly attended to. But, feeling as I do that there are so many good arguments for the theory that the only infection with tubercle bacillus which really matters is the one contracted in childhood, I hesitate to be as optimistic, as these gentlemen are, that segregation will stamp out tuberculosis; and, for this reason, that I think there are are so many symptomless, and even signless, tuberculous "carriers" who could be potential, and actual, infective agents that our children would still be infected. I will not cross lances with Dr. Ward as to which is the more serious infection, tuberculosis of the respiratory tract or catarrh of the respiratory tract. I have expressed my belief in the theory that the accessory catarrhal infections are the main causes of the signs and symptoms I meet with in the consumptive. I am glad Dr. Ward agrees that there are cases which appear clinically to be tuberculosis of the lungs, or consumption, in which the tubercle bacilli are repeatedly absent from the sputum; but, until Dr. Ward, or some other worker, establishes as a fact his hypothesis of the existence of an unrecognised form of the tubercle bacillus, I think such cases should not be treated as if they were due to tuberculous infection.

Dr. Holden will forgive me for tilting at the cocksure way in which he prophesies that segregation would render tuberculosis in a generation as uncommon as leprosy. I would ask him to use his efforts to substantiate that theory by direct experiment before he uses the weight of his opinion in holding out before the public still another cure for tuberculosis.

Dr. Fairley asked me if it is my considered opinion that the adoption of prophylactic vaccination against tuberculosis and catarrhal infections would lower the tuberculosis death-rate, and my answer is that, arguing on the analogy of what had been done to prevent typhoid fever in the army, I say that I consider inquiry by experiment should be made in this direction. I do not advocate it for application in practice until favourable experiments are carried out. I must counter one remark of Dr. Fairley's. He says that tuberculin tests enable us to find out infected cows. Surely in these days it is not necessary to remind Dr. Fairley that cattle may be tuberculous and yet give no tuberculin reaction, so that when we "cleaned up our herds" we should still be left with cattle which were capable of infecting our children. Such an example of the difficulties met with in preventing the spread of tuberculosis is only one of the many which I fear beset us in this difficult subject.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 23rd, 1920. H. BATTY SHAW.

THE INTERNATIONAL CONGRESS OF MONACO.

To the Editor of THE LANCET.

SIR,—Allow me to draw the attention of your readers to the special interest of the forthcoming International Congress of Monaco. The Congress will open on April 15th, under the presidency of H.S.H. Prince Albert I. of Monaco. It amalgamates the following scientific congresses: (1) Medical Hydrology and Geology; (2) Hygiene and Climatology; (3) Spas and Thalassotherapy. It is expected to last ten days.

It seems futile to insist on the scientific interest of these various congresses, but I should like to point out the national interest of this occasion for the health resorts of Great Britain. The Congress is exclusively open to the Allies. So far as the benefit of a cure in health resorts is derived from the complete change in the patient's habits and surroundings, is it not time for Great Britain to cater for those who, previous to the war, used to flock to Central Europe?

The organising committee has been working, as might be expected, under difficult circumstances; nevertheless, special facilities as regards travelling and hotel accommodation will, it is hoped, help to make this gathering a success.

For information apply to Dr. C. F. Sonntag, secretary of the Balneological Section of the Royal Society of Medicine, Zoological Society, Regent's Park, N.W.

I am, Sir, yours faithfully,
GUSTAVE MONOD, M.D., M.R.C.P.,
Vichy, Feb. 18th, 1920. Secretary of the Organising Committee.

ANÆSTHESIA IN THROAT AND NOSE OPERATIONS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 21st you publish Dr. Felix Rood's admirable paper on Anæsthesia in Throat and Nose Operations. In spite of the fact that there are still a few advocates of chloroform, the case against this anæsthetic was well established, and the only conclusion possible is that there is a very general agreement that ether is preferable. It is evident that the whole difficulty originates from the fact that there is blood in the neighbourhood of the glottis, and yet neither in the opening paper nor in the subsequent discussion was there any mention made of any attempt to solve the problem by an efficient device for removal of the blood.

During a recent visit to the throat clinics in the United States I was much struck by the usefulness of an apparatus for aspiration of blood which is in general use there. This blood evacuator is made in a compact and portable form, and consists of a motor-driven combination pressure and suction apparatus, by means of which it is possible completely to evacuate the blood from the throat, while at the same time delivering a regulated stream of ether vapour. I have now used it in a large number of cases to the entire satisfaction of the anæsthetist and myself, and am convinced that no method which does not embody this principle of removal of blood by suction can secure such a quiet field of operation and opportunity for leisurely performance of pharyngeal operations. It obviates the repeated sponging which is one of the chief difficulties of the anæsthetist, the sole sponging necessary being the use of one sterile swab for each tonsil fossa. There is no sickness, and the careful examination of the fossa, which is so essential, is made quite easy. The total absence of congestion makes this method ideal for such cases as pericarditis and exophthalmic goitre, and any of those chronic infective conditions which so frequently need tonsillectomy. Many such cases are included in my list, and the contrast has been very striking when compared to other methods.

The apparatus was designed by Dr. Yankauer, of New York.

I am, Sir, yours faithfully,
A. M. ZAMORA, M.C.Camb., F.R.C.S.Eng.
Welbeck-street, W., Feb. 23rd, 1920.

THE LESSONS OF STATISTICAL METHODS.

To the Editor of THE LANCET.

SIR,—Dr. H. Batty Shaw's lecture in THE LANCET of Jan. 24th on Pulmonary and Other Forms of Tuberculosis has brought to my mind a subject which I have thought a good deal about and which I may call the statistical evaluation of different lines of treatment in disease. I am not acquainted with any work, either of a private or official nature, which effects this—a most important subject for all who have to advise patients on the probable best line of treatment to adopt.

I can make clear what I mean, I think, by a hypothetical case of any common disease. A patient consults me with, say, cancer of the breast involving the axillary glands, and I, as a general practitioner, get a surgeon's advice and he advises an operation. I recommend my patient to follow the surgeon's advice, but at the same time am not quite sure in my mind that the result will be a satisfactory one. But what am I to do? All the surgeons say that the evidence is overwhelming for operative measures; but where can I get evidence of, say, 5000 operations for breast cancer and the duration of life, freedom from pain, absence of recurrence and for how long, and so forth? Can I get evidence of 5000 breast cancers treated by any one other method and their results?

The essence of this idea lies in the following up of all cases of illness, however trivial, and the treatment adopted over a considerable number of years; in fact, it means a medical history-sheet for every member of the community, which would ultimately have to be classified, and a group formed for a period of five years or more or less, from which one would get some idea as to some outstanding therapeutic measure of any real value.

What are therapeutics at the present day? Frequently individual fancies of the practitioner based on his own, necessarily very small, experience, and the statements, also usually the experiences of an individual, that he reads in books on therapeutics. We should all like to be able to get statistical evidence of, say 100,000 cases of tuberculosis, which would go far to convince us that the tuberculosis of the adult was an "inside" infection from an old arrested infection of childhood, or that it was an "outside," say inhalation, infection, from an infected dwelling, as it would make an enormous difference to our methods of combating the disease.

I once was discussing some operative procedure with a friend who had been a house surgeon in a large clinical hospital and left this appointment with all the enthusiasm of youth for this operative procedure, but his enthusiasm was sadly damped by a period of residence in a workhouse infirmary in the neighbourhood shortly after when he saw several of these surgical triumphs coming in to die. Here we have individual experience of the smallest degree, but it is going to influence that practitioner in his future practice. Would it not be an enormous advantage if a thousand or ten thousand cases of that disease, their duration, and general course under the operation in question and alternative methods were available at a central clearing-house where the practitioner could get information from.

It will naturally be asked how is this colossal amount of information to be obtained. The present National Insurance system is a ready-made channel for working through, and with regard to that system I am of opinion that a large amount of the trivial work performed by the general practitioner could be performed by nurses, and a reduced quantity of a better-class and better-paid-for work could then be performed by the practitioner.

It is, perhaps, pointing to all medical service being a question of State service, but whether that be so or not I am quite convinced that it is only by the comparative valuation of therapeutic measures taken in as large a number of cases as possible and their results watched and estimated over as long a period as possible, that we shall emerge from, shall I say, the empiricism of the physician and the individualism of the surgeon.

I am, Sir, yours faithfully,
Charing, Kent, Feb. 14th, 1920. H. E. LITTLEDALE, M.D.

THE DIAGNOSIS OF MALARIA.

To the Editor of THE LANCET.

SIR,—In the Experiences of Malaria in the Egyptian Expeditionary Force published in THE LANCET of Jan. 10th Mr. Philip Manson-Bahr rightly insists on the necessity of early microscopic diagnosis in malaria. The reason given is that in its absence clinicians are liable to make mistakes. Three cases diagnosed clinically as sunstroke were subsequently found, by microscopic examination, to have been malignant malaria; five cases of dysentery were subsequently diagnosed malarial enteritis; cases diagnosed clinically as relapsing and enteric fevers were subsequently, by microscopic diagnosis, found to have been malarial relapses; and cases diagnosed clinically as epidemic influenza, which was prevalent, were subsequently diagnosed by microscopic examination as malignant malaria. The small number of clinical mistakes discovered in the sick of such a large force reflects, I think, great credit on the medical officers of the force. Such mistakes are not always avoidable under the circumstances attending a rapid advance of a large force in the field.

In Palestine malarial fever is very prevalent. Masterman, who investigated malaria there before the war, remarked that the verdict of the microscope upsets all ideas of clinical experience. Parasites are found swarming in the blood of some, especially children, who exhibit no rise of body temperature, and who are to all appearance in good health, whilst in others suffering from what is clinically a typical malarial fever not even one parasite can be found in the blood. Hence it is possible that the subsequent discovery of parasites in a patient's blood does not mean that the original clinical diagnosis of another disease must necessarily have been an error. Also the failure to find parasites in the blood during the first few days of a primary attack of malaria does not exclude the possibility of the disease being malaria. The absence of parasites from the blood during the first three days of the fever is well illustrated in the original report of Manson's famous experiment in London, as published in THE LANCET of Sept. 29th, 1900, p. 923. Mosquitoes fed on malarial subjects in Rome had been brought to London and there allowed to bite two healthy young men. Of the two bitten men, the history of only one is related in the report. He had been bitten by about 55 mosquitoes on the hands and arms. This produced considerable irritation of the skin, persisting for two days, and subsequently malarial fever developed. During the first three days of the fever the body temperature varied between 100·4° and 103·6° F., but not even one parasite could be found in the blood, although repeatedly searched for. On the morning of the fourth day of the fever body temperature had fallen to 98·4°, and rose again to 102·8°. Repeated microscopic examination of the blood revealed only one doubtful half-grown tertian parasite. On the fifth day of the fever the morning body temperature was 99°. Several half-grown parasites, one gamete, and two pigmented leucocytes were found in the blood in the first film examined. During the day many tertian parasites were found, and the body temperature rose to 103°. On the sixth day of the experiment the body temperature in the morning had fallen to 97°, and did not again rise. A few three-quarter grown tertian parasites were found in the blood.

It is seen, then, that although it has been computed that one-quarter of a billion parasites must be present to produce fever, not even one parasite could be found in the blood during the first three days of the fever, whilst during the last three days, as the fever subsided, parasites were found. This absence of parasites from the blood during the first few days of a primary attack of malaria, such as in the experiment, and their appearance in the blood later was doubtless the reason why some who, when Laveran announced he had discovered parasites in malarial blood which were the cause of the fever, asserted that the bodies he discovered were not parasites, but what are now called pseudo-parasites—i.e., blood corpuscles changed in appearance, so that they resemble Laveran's bodies. Their late appearance in the blood was given as reason for regarding them as an effect, and not the cause of the fever.

When, as we have seen, the best expert microscopists failed to discover parasites in the blood during the first three days of the experiment in a quiet home in London, it is too much to expect that microscopic diagnosis would be more successful under the unfavourable circumstances attending the rapid advance of a large force in the field as in Palestine.

I am, Sir, yours faithfully,

Leeds, Feb. 24th, 1920. MATHEW D. O'CONNELL, M.D.

PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—I have followed with interest the discussion on the prevention and treatment of venereal disease, and the attitude with regard to the subject taken by the National Council for Combating Venereal Diseases, the Society for the Prevention of Venereal Diseases, and the proposals for dealing with these diseases that have been brought before the public, notably by the *Times*. The "Memorandum of the Policy of the Medical Women's Federation," as reported in THE LANCET of Feb. 14th, adds another expression of opinion with which I do not think all medical women will agree, in so far that it does not appear to grapple sufficiently with the preventive side of the question from the medical point of view. It seems most regrettable that a controversy should be carried on when a combined and concentrated effort is so urgently needed to meet and to deal with what is acknowledged to be a scourge and a source of national weakness, and I feel inclined to ask. Have we not a dual responsibility with regard to this matter—namely, that of citizens, and that of medical practitioners responsible for the health of the nation? As citizens we must further by every means in our power all endeavours made to combat the evil by legislation, by social effort, by education, and by religious instruction, and the last by no means the least, for it requires a greater incentive than the fear of results to deter most men or women from sin—and fornication is sin.

Having, I hope, guarded myself from misunderstanding and made my position clear, it appears to me that as doctors we must face the fact that a certain proportion of individuals, either from force of temptation, heedlessness, or of deliberate choice do, and will, run the risk of infection, and for those provision must be made as far as possible to prevent the development of disease in them, and the carrying of disease by them, not so much perhaps for their own sakes, as in defence of and for the sake of the innocent women and children who may immediately or later become infected by them. The far-reaching effects of congenital syphilis have not even yet been fully realised.

The controversy seems to centre round a most unfortunate phrase, "Prophylactic Packets." No one in these days can object to personal hygiene, and it would seem only reasonable to teach the need for immediate disinfection after illicit intercourse, where unquestionably a possible risk of infection is always incurred, and to ask this is no more than to ask—what is acknowledged to be a duty as a citizen—that after contact with any other infectious and possibly much less dangerous disease precautions against infection should be taken. In view of the evidence given by witnesses before the Interdepartmental Committee, and statements made by those in a position to know, it appears to be established that early disinfection does minimise the development of these diseases. This being so, if the practice of disinfection were adopted by men, even though it were not efficiently carried out in every case, it would surely go a long way to prevent the spread of disease, to save misery in families, and the ill-health of which we see so much in young married women.

Early preventive treatment for women cannot, for obvious reasons, be advocated in the same way. It is now comparatively easy to recommend treatment to married women and to unmarried mothers who have been infected. But the class of women and young girls who, for the sake of argument, may be regarded as the primary source of infection, present a much more difficult problem. Fortunately, the greater number of them do not become mothers. When we consider the social conditions of the majority of the young girls who lead more or less irregular lives, one realises how impossible it is for them, even when the disease has been diagnosed, to carry out directions such as those given in Forms V. 6 and V. 7, published by the Local Government Board, regarding precautions to be taken by those suffering from syphilis and gonorrhœa as regards the "risk of infecting others." As well might we expect a patient suffering from scarlet fever to be satisfactorily treated in a house of one or two rooms inhabited by a large family. Most of those girls who are spreading disease, and who may be a greater source of danger than the older women, are living at home or in lodgings, and are in daily employment; they may be working in dairies, or employed as waitresses, or otherwise handling food, or even be in situations and have charge of young children. To deal satisfactorily with this class, much greater provision for indoor treatment must be provided than is at present available, and a much more elastic provision for admission must be made, even if it entail something of the nature of reception wards, so that any woman who applies for treatment or shelter at any hour of the day or night can be admitted. If efficient help were available when sought for, it would induce many, when they fear they have become infected, or that they have contracted disease, to seek advice, and would be taken advantage of according as to how the benefit was administered. If efficient help is not given when sought for, the probability is that the women may not return.

Another difficulty which presents itself is that a number of those who seek advice discontinue treatment before the acutely infectious stage is past. The consensus of opinion is against notification, but I am inclined to the belief that if some form of confidential notification could be introduced, applicable equally to men as to women, and only to be applied to those cases that are in an acutely infectious stage, it would be of service in ensuring continuity of treatment. Ophthalmia neonatorum is now a notifiable disease, and there is no outcry as to its injustice, although it indicates, to those who know what it means, the nature of the disease and the probable source of infection. Before, however, this measure can be whole-heartedly advocated, time must be given to allow of evidence being collected as to the efficient working of venereal disease clinics and the results attained in the reduction of venereal disease.

I am, Sir, yours faithfully,

LAURA STEWART SANDEMAN, M.D.

Aberdeen, Feb. 19th, 1920.

GREAT NORTHERN CENTRAL HOSPITAL.—In order to meet the growing demands of North London the Committee of Management of the Great Northern Central Hospital, Holloway-road, N., are providing, from March 1st, a special department for diseases of children and child-welfare consultative centre. There will be two sections—medical and surgical—and the session will be held on Monday afternoons at 2.30. This department is intended for children under 12 years of age.

Medical News.

Smoke Abatement.—The Minister of Health has appointed a Committee to consider the present state of the law as regards the pollution of the air by smoke and other noxious vapours and to advise what steps are desirable and practicable to diminish the evils still arising from such pollution. A Departmental Committee was appointed by Mr. Herbert Samuel in 1914 to inquire into this subject and it had made some progress in taking evidence when the war broke out and its proceedings were discontinued. Lord Newton will be chairman of the new Committee and the other members are Captain Hamilton Benn, M.P.; Professor J. B. Cohen, Leeds University; Mr. W. S. Curphey, Chief Alkali Inspector, Ministry of Health; Sir John Lithiby, late legal adviser to the Local Government Board; Mr. J. F. MacCabe, Local Government Board, Ireland; Mrs. Gilbert Samuel; Mr. E. D. Simon, Manchester City Council; Bailie W. B. Smith, Glasgow City Council; and Mr. F. J. Willis; Chief Assistant Secretary, Ministry of Health. Mr. E. C. H. Salmon, of the Ministry of Health, will act as secretary to the Committee, and any communication should be addressed to him at the Ministry of Health, Whitehall, S.W.1.

Conjoint Examining Board: Diploma in Tropical Medicine and Hygiene.—New regulations for this diploma were adopted by the Royal College of Surgeons on Feb. 12th. They require only a three months' course of instruction in tropical medicine at a recognised school instead of the longer course formerly prescribed. The synopsis of the examination has been modified and now runs as follows:—

1. The methods of examination of tissues, blood, secretions, excretions, parasites, and others organisms in relation to tropical medicine. The characters and life-history of protozoa, helminths, arthropoda, fungi, bacteria, and other organisms in relation to tropical diseases.
2. Medicine in relation to tropical diseases.
3. Hygiene of the tropics in relation to climate, race, food, water, soil, and waste matter.
4. Hygiene of the tropics in relation to towns, buildings, plantations, irrigation, and shipping.
5. Reclaiming of swamps and low-lying lands.
6. Sanitary measures dealing with communicable tropical diseases.

The next examination will be held on April 26th, and candidates who have complied with the conditions of the new regulations will then be admitted.

Royal Institution.—On Tuesday next (March 2nd), at 3 o'clock, Professor Arthur Keith begins a course of four lectures at the Royal Institution on British Ethnology: the Invaders of England; and on Thursday (March 4th) Lieutenant-Colonel Gold delivers the first of two lectures on the Upper Air. Sir John Cadman's postponed lectures on (1) Modern Development of the Miner's Safety Lamp, and (2) Petroleum and the War, will be delivered on Monday and Wednesday, March 8th and 10th. The Friday evening discourse on March 5th will be delivered by the Hon. J. W. Fortescue on Military History, and on March 12th by W. W. Rouse Ball on String Figures.

Instruction in Venereal Diseases at St. Bartholomew's Hospital Clinic.—A second post-graduate course of instruction in the diagnosis and treatment of venereal disease is being arranged by Mr. K. M. Walker at St. Bartholomew's Hospital Clinic, Golden-lane, E.C., established by the Corporation of London. The course will be held on Thursday afternoons, at 5.30, commencing on Thursday, March 4th. The beds attached to the clinic are available for the reception and study of suitable cases in addition to work in the out-patient department. There are still a certain number of vacancies. Any medical practitioner wishing to attend is invited to send his name to the Secretary, National Council for Combating Venereal Diseases, 81, Avenue Chambers, Southampton-row, W.C.1.

Literary Intelligence.—Messrs. Masson et Cie. announce the reappearance of the *Revue de la Tuberculose*, discontinued since 1917, under the editorship of Dr. Courcoux and a managing committee of 26 distinguished colleagues. It is the official organ of the Œuvre de la Tuberculose, and appears bi-monthly. Annual subscription in France 30 frs., abroad 35 frs.—A new monthly journal entitled *Gynécologie et Obstétrique* is also appearing, beginning in February, and replacing three journals which may briefly be described as the *Revue Pozzi*, the *Archives*, and the *Annales*. The first number contains 95 pages of original matter alone, with a number of abstracts. The annual subscription is 40 frs. (France), 50 frs. (abroad).—The useful journal of reference entitled *Folia Hæmatologica*, founded by Professor A. Pappenheim, is to be continued under the joint editorship of Dr. O. Nägeli in Zurich and Dr. H. Hirschfeld in Berlin.

Sir Bertrand Dawson has taken the title of Baron Dawson of Penn in the county of Buckinghamshire.

At the sitting of the Vienna Medical Society held on Jan. 30th, Professor F. K. Wenckebach paid a warm tribute to the memory of Sir William Osler.

Erratum.—In commenting last week upon Dr. Murray Leslie's lectures, delivered at the Institute of Hygiene, we stated that the audience consisted of the members of the Royal Sanitary Institute.

Presentation to a Medical Man.—Dr. F. H. Haynes, J.P., consulting physician to the Warneford Hospital, Leamington, after completing 50 years as a member of the staff of the hospital, has been presented with an illuminated address and invited to sit for his portrait in oils.

A Centenarian.—The death occurred at Worthing on Feb. 20th of Miss Emmeline Draper, who on Nov. 2nd last attained the great age of 104. Her sight failed her a few years ago, but except for this her senses were wonderfully acute. She was a native of Ostend, where her father, a surgeon in the old 78th Highlanders, had formerly been stationed.

No. 34 (the Welsh) General Hospital and the Welsh Hospital, Netley.—It is proposed to hold a reunion dinner for all ranks (men and women) in London towards the end of April. Those wishing to attend should notify Mr. R. L. Mackenzie-Wallace, 55, Townshend-road, London, N.W.8, or Mr. E. J. August, 51, Etchingham Park-road, London, N.3, before March 12th.

No. 3 Casualty Clearing Station.—It is proposed to hold a reunion dinner of officers who served with this unit on Saturday evening, March 20th, at 7.30 P.M. Officers desirous of being present should communicate with Major A. D. Stirling, D.S.O., R.A.M.C., War Office, Cornwall House, Stamford-street, London, S.E.1, as early as possible. Officers who were attached to the unit will also be welcome.

King's College, London: Old Students' Association.—There is a strong movement on foot for forming a properly constituted Old Students' Association at King's College, London. A committee was lately formed which has drawn up a provisional constitution, and a general meeting has been called for March 4th at 6 P.M. at the College in order to ratify it. It has been possible to send notices of this meeting only to those old students whose names are on the Register, but it is hoped that the meeting will be made widely known, and that as many old students as possible will be there.

Diet and the Prevention of Influenza.—A Memorandum published by the Food (War) Committee of the Royal Society states that wrong methods of cooking impair the value of antiscorbutic vitamines, and urges that soda shall on no account be used, and that vegetables shall be cooked rapidly and for as short a time as possible. The Council of the Bread and Food Reform League and other signatories are petitioning the Minister of Health that the attention of the people shall be directed to these subjects, thus enabling them the better to resist the infection of influenza and other epidemics.

The Dublin "Curfew Order."—An order signed by the competent military authority last week requires all persons within the Dublin Metropolitan Police District to remain indoors between 12 midnight and 5 A.M., unless provided with a written permit. It is promised that permits will be granted to clergymen, medical practitioners, and nurses engaged on urgent duties. Any person abroad within the hours mentioned is warned to halt and obey any order given him when challenged by any policeman, officer, non-commissioned officer, or soldier on duty. It is to be hoped that this order will be carried out with due consideration for the care of the sick and the safety of their ministrants.

Bangor Nursing Society.—At the annual meeting of this society on Feb. 16th Sir John Byers gave an address on "A Ministry of Health," explaining its origin, composition, and functions, and its relation to Ireland. He showed how far Ireland was behind Scotland and England in public health administration. There was no medical inspection of schools nor school medical clinics, which had existed in these other countries for 10 years; the insurance scheme in Ireland was without medical benefits; there were no county medical officers of health; there were no medical research committees to help in the solution of difficult medical problems. Far too much of public health legislation in the past was of a permissive nature, which naturally often ended in nothing being done. Such was Professor Byers's gloomy conclusion.

THE recent sitting of the Swiss Medical Commission at Berne considered measures to prevent the intrusion of foreigners into medical practice in Switzerland.

THE Proceedings of the Medical Conference of Red Cross Societies, held at Cannes in April, 1919, have now been issued by the League of Red Cross Societies at Geneva in a volume containing portraits of the delegates.

THE LATE DR. R. J. BANNING.—The death of Robert Joseph Banning has occurred at his residence, Helidon, Shoeburyness, Essex, on Feb. 10th, aged 87. Dr. Banning saw the first excursion train leave Liverpool for London, and, during a visit to America, he met George Washington. He was born in Liverpool, where he received part of his medical education at the old medical school. He also studied at the Middlesex Hospital and qualified with the L.S.A. in 1854. As a civil surgeon he took part in the Crimean War and for his services was granted the medal. In 1857 he graduated M.D. at St. Andrews, and in 1858 became a Member of the Royal College of Surgeons of England. For a time he acted as honorary medical officer to the Gateshead Dispensary, subsequently practising at Shoeburyness. During the session 1894–95 he presided over the West London Medico-Chirurgical Society.

BRIGHTON AND HOVE DISPENSARY.—There should be no need to call attention to the excellent work that is being done by the Brighton, Hove, and Preston Dispensary, established over 100 years ago. Statistics of the past year's work give proof of the value of the institution to the townspeople. Yet the year 1919 closed with an overdraft of nearly £1500, and at the annual meeting of the governors it was declared that unless there were more annual subscribers the work of the institution would have to be curtailed by the closing down of some of the wards. A special effort is to be made to relieve the financial strain, and, realising the very useful work of women, the rules were altered so as to permit one-third of the governors to be women.

THE LATE DR. J. H. DAVIES.—John Hopkyn Davies, who died in London on Feb. 10th, was a well-known practitioner at Port Talbot, where he had lived for some 50 years. He was educated in his father's school at Newcastle Emlyn, and afterwards entered at the Middlesex Hospital, qualifying M.R.C.S. Eng. and L.S.A. in 1872. In 1889 he obtained the degree of M.D. Durh. Formerly medical officer to the Aberavon Urban District Council, Dr. Davies was at the time of his death in charge of the health of the Margam district, assistant health officer for Port Talbot, and superintendent of the Margam Sanatorium. He was on the commission of peace for Glamorgan.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE: ANNUAL REPORT.—The annual report of the Council was presented to the Court of Governors at their meeting on Feb. 11th. The report begins with an expression of regret for the death of Professor Frederick Page, who was appointed lecturer on medical jurisprudence in 1875 and filled the office of registrar for about 30 years. With regard to the present position of the medical school the report states:—

> The number of students at present in attendance is 389 (70 women and 319 men), and is the largest in the history of the College, being an increase of 150 over the year 1918, and 220 over that of 1917. This is mainly accounted for by the entrance of men who have been discharged from H.M. Forces since the signing of the peace. Preference of admission to the College was given to these men, about 120 of whom are in receipt of grants towards their maintenance and their tuition fees from the Board of Education. After admitting these ex-Service students it was found impossible, owing to want of accommodation, to receive a good many of the other students who applied.
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> Although the entry of students will, no doubt, fall somewhat next winter the Council is of opinion that the present great demand for qualified medical men and women will not be met for a considerable number of years. In view of this, reference must again be made to the immediate need of increasing the accommodation and the facilities for teaching. During the past year the teaching staff has been strengthened by the appointment of additional assistants in the departments of anatomy, physiology, pathology, and bacteriology, but the endowment of a chair of medical chemistry (bio-chemistry) and a great increase in the laboratory and other accommodation of the College are crying needs.

A committee of the Council has reported that it is impossible to extend the College on its present limited site sufficiently to meet the requirements of modern medical education, and recommends the erection of a new and greatly enlarged College in the vicinity of the Royal Victoria Infirmary. It is estimated that a sum of about £250,000 will be required to erect and endow the new building. Residential hostels for male and female students are also needed, together with proper housing for the Students' Union Society. To provide these a further sum of about £30,000 is necessary. This College is the only school of medicine between Edinburgh and Leeds, and a good proportion of the medical practitioners of the North of England have been educated in it.

COMPLIMENTARY DINNER TO LORD DAWSON.

ON Wednesday evening, Feb. 25th, a dinner was given by the Federation of Medical and Allied Societies to Lord Dawson of Penn, the occasion being to congratulate him upon his elevation to the peerage. The dinner took place at the Café Royal, Sir Malcolm Morris, the chairman of the Federation, presiding, when a representative body of guests assembled, among those present being Dr. Addison (the Minister of Health), Lord Astor, Sir Robert Morant, Dr. Arthur Latham, Dr. Dawson Williams, Mr. E. B. Turner, Dr. G. E. Haslip, Lord Charnwood, Sir Ronald Ross, Sir W. Arbuthnot Lane, Dr. J. F. Gordon Dill, Dr. E. H. Stancomb, Mr. C. J. Bond, Sir John MacAlister, Dr. W. Elliot, M.P., Dr. Jane Walker, Miss L. Aldrich-Blake, Dr. R. H. Cole, Sir David Ferrier, and Dr. Squire Sprigge.

The Chairman, proposing the health of Lord Dawson, started by pointing out that the new peer might be seduced into giving gratuitous consultations in the Upper House, or be compelled by emergency to attend noblemen suffering from political shock, even from a precipitous fall from the Woolsack. Concluding in a more serious vein, he urged that the presence of a practising physician in the House of Lords was an earnest that in the future doctors would engage more closely in State affairs.

Lord Dawson, in reply, acknowledged frankly the pleasure it gave him to receive appreciation from a representative body of his own colleagues, and repeated Sir Malcolm Morris's message that in the new era medical men would take a greater share in State responsibilities.

Dr. Addison, protesting that he had definitely refused to make a speech, laid stress upon the important position which Lord Dawson occupied as Chairman of the Medical Consultative Committee under the Ministry of Health, and said that in a short time the first report from that body would be published, when its recommendations would have to be read seriously, though it did not follow that it would be possible to adopt them all.

Mr. Bond made an eloquent exposition of what the relations between the public and the medical profession should be in wishing prosperity to the Federation, to which Dr. Howard Mummery replied by stating very clearly the hopes and aims of that body. Mr. E. B. Turner proposed the health of the Chairman, who briefly replied.

The Services.

ARMY MEDICAL SERVICE.

Major-Gen. J. B. Wilson and Col. D. D. Shanahan are placed on half pay.

Temp. Col. A. S. Woodwark relinquishes his commission and retains the rank of Colonel.

Col. T. H. M. Clarke retires on retired pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. J. G. McNaught retires on retired pay.

Lieut.-Col. C. S. Smith is placed on the half-pay list on account of ill-health.

Major G. H. Stevenson to be acting Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Major: Capt. and Bt.-Major W. E. Marshall; Capts. G. G. Collet and G. A. Bridge; Temp. Capts. P. P. J. Stewart and H. M. Anderson.

Major and Bt. Lieut.-Col. W. Benson relinquishes the acting rank of Lieutenant-Colonel.

Capt. W. S. Martin, from unattached list, T.F., to be Temporary Lieutenant.

Temp. Capt. (acting Major) R. G. Oram (Lieutenant, 9th Lond. R., T.F.) relinquishes his temporary commission.

Capt. P. C. Field is restored to the establishment.

Temp. Capt. H. A. Tillman to be acting Major whilst specially employed.

Officers relinquishing their commissions:—Temp. Hon. Lieut.-Col. J. H. Nicholl (retains the honorary rank of Lieutenant-Colonel). Temporary Majors retaining the rank of Major: W. P. Yetts, J. R. Lee, E. B. C. White. Temp. Hon. Major A. M. Westwater (retains the honorary rank of Major). Temp. Capt. (acting Lieut.-Col.) F. R. Fraser (granted the rank of Major). Temp. Capt. (acting Major) J. W. Innes (granted the rank of Major). Temporary Captains retaining the rank of Captain: J. B. Donaldson, R. H. Liscombe, S. F. McDonald, S. S. Rosebery, G. M. Jones, T. W. Kelly, E. C. Black, A. A. Henderson, C. V. Walker, W. P. Cooney, C. E. Meryon, A. C. B. McMurtrie, J. G. Jones, J. F. Bridge, H. M. Leathes, H. G. Steel, F. J. Fahy, W. R. Reynell, F. M. Bishop.

SPECIAL RESERVE OF OFFICERS.

Capt. J. R. Caldwell resigns his commission.

TERRITORIAL FORCE.

Capt. (acting Lieut.-Col.) J. Tait relinquishes the acting rank of Lieut.-Colonel on ceasing to be specially employed.

Capt. (temp. Major) A. E. Barnes relinquishes the temporary rank of Major.

Major H. H. B. Cunningham to be acting Lieutenant-Colonel whilst specially employed.

Capts. (acting Majors) J. G. F. Hosken and F. Arvor relinquish the acting rank of Major on ceasing to be specially employed.

Capt. J. M. Kirkness is restored to the establishment.

2nd London General Hospital: Capt. H. F. Lancaster is restored to the establishment.

1st Southern General Hospital: Major (Bt. Lieut.-Col.) (acting Lieut.-Col.) J. E. H. Sawyer relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

3rd Northern General Hospital: Capt. A. E. Barnes to be temporary Major whilst specially employed.

TERRITORIAL FORCE RESERVE.

Capt. D. W. C. Jones, from General List, to be Colonel.

ROYAL AIR FORCE.

Medical Branch.—Flying Officer G. McK. Thomas to be Flight Lieutenant.

The undermentioned are transferred to the unemployed list: Capts. J. Gardner, G. Meadows, V. Magee; Lieuts. T. Acton, T. E. Roberts.

Dental Branch.—The undermentioned are transferred to the unemployed list: Capts. J. Smith, S. C. Turner.

INDIA AND THE INDIAN MEDICAL SERVICE.

THE Viceroy has selected Lieut.-Col. D. M. Davidson, Civil Surgeon, Lahore, to hold charge of the office of Inspector-General of Civil Hospitals, Punjab, in place of Col. R. C. MacWatt. Major C. E. Palmer, on return from military duty, has assumed charge as Superintendent, Central Prison, at Naini (Allahabad). Captain T. Fleming, R.A.M.C., acts as Civil Surgeon, Port Blair. The Chancellor of the Calcutta University has nominated Dr. Hassan Suhrawardy to be Ordinary Fellow of the Calcutta University. The following officers have reverted to civil employ: Lieut.-Col. G. McIver Smith (Punjab), Lieut.-Col. G. H. Stewart (Burma), Lieut.-Col. E. R. Parry (Bengal), Lieut.-Col. N. R. J. Ramier (Central Provinces). Major F. A. Barker has been appointed Senior Medical Officer in the Andamans and Major Cruikshank has been granted eight months' combined leave. Captain H. K. Downtree has been appointed Additional Assistant Director-General.

THE "ARM BADGE" OF THE R.A.M.C.

With respect to the arm badge of the N.C.O.'s and men of the R.A.M.C., Sir George Evatt writes from the Junior United Service Club making certain recommendations. The badge is worn, he points out, in peace on the sleeve of the tunic as a yellow and white ring with the Red Cross in centre. "It is small, not very distinctive, but is replaced in war by the definite broad white armlet with Red Cross in the centre. I propose to abolish the small yellow and white ring, and replace it *in peace* by the collar badge worn by the R.A.M.C. officers, and in war to give to both officers and men the very definite and unmistakable brassard of the Geneva Convention—viz., the Red Cross on the white brassard." The innovation is calculated, in Sir George Evatt's mind, to unite still more closely the officers, N.C.O.'s, and men of the R.A.M.C., who need the very closest union possible to achieve success in their important duties.

DEATHS IN THE SERVICES.

Surg.-Gen. James Albert Clery, C.B., A.M.S. (retired), died at his residence at Blackheath on Feb. 10th, in his seventy-fifth year. He entered the service in 1871 and during his 35 years in the army he saw a good deal of active service. In the Sudan Expedition of 1884–5, he obtained the medal with clasp and the bronze star, and in the Nile Expedition in 1898 he earned a mention in despatches and received two medals. In the South African War he was principal medical officer on the lines of communication, and was at the relief of Ladysmith. He was twice mentioned in despatches and was subsequently awarded the C.B., the Queen's medal with six clasps, and the King's medal with two clasps.

FOREIGN DECORATIONS.

Chinese.

Order of the Wen-Hu.—4th Class: Temp. Maj. (acting Lt.-Col.) W. H. G. Aspland, R.A.M.C.; Temp. Maj. S. M. Cox, R.A.M.C.; Temp. Maj. T. N. Frood, R.A.M.C.; Temp. Maj. (acting Lt.-Col.) G. D. Gray, O.B.E., R.A.M.C. *5th Class:* Temp. Capt. P. C. Leslie, R.A.M.C.; Temp. Capt. H. D. Matthews, R.A.M.C.; Temp. Capt. E. J. Peill, R.A.M.C.; Temp. Capt. J. W. Pell, R.A.M.C.; Temp. Capt. W. R. Reeds, R.A.M.C.

Panama Republic.

Medal of "La Solidaridad,"—3rd Class: Capt. (acting Maj.) W. K. Campbell, D.S.O., M.C., R.A.M.C.; Capt. and Bt. Maj. (acting Maj.) W. L. Webster, R.A.M.C.; Capt. (acting Maj.) J. M. Weddell, R.A.M.C.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 18TH.

Death-rate in British India.

Mr. LUNN asked the Secretary for India what was the death-rate per 1000 in British India from the years 1913 to 1919 inclusive.—Mr. FISHER (Minister of Education) replied: The death-rate per 1000 for the years 1913 to 1918 was as follows: 1913, 28·72; 1914, 30·00; 1915, 29·94; 1916, 29·10; 1917, 32·72; 1918, 62·42. Figures for 1919 are not available. The exceptionally high mortality in 1918 was due to a severe epidemic of influenza.

Municipal Maternity Homes.

Mr. CLOUGH asked the Minister of Health if he would state what action was being taken by his department to promote the establishment of maternity homes by municipal authorities.—Dr. ADDISON replied: The Local Government Board and the Ministry of Health have for some time pressed upon local authorities both in general circulars and in individual letters the importance of the provision and maintenance of maternity homes, and have obtained Treasury sanction for a grant of half the approved expenditure on these purposes. A memorandum has just been issued and will be placed on sale giving guidance as to suitable plans and equipment and so forth. During the last year or so about 25 such homes were established by municipal authorities and about 20 by voluntary bodies, who as a rule received financial assistance from local authorities. Many similar homes have been planned and are likely to be established in the near future.

Queen Alexandra's Nurses and Wound Gratuity.

Lord HENRY CAVENDISH-BENTINCK asked the Secretary for War if he would explain why a wound gratuity and wound pension was refused to Miss Eileen King, a member of Queen Alexandra's Nursing Service, who was severely wounded by hostile bombs while on military duty in France and passed permanently unfit for further military service.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: Members of the Queen Alexandra's Imperial Military Nursing Service are not eligible for wound gratuities or wound pensions. The question of the rate of disability retired pay for which Miss King may be eligible is a matter for the Ministry of Pensions, and as I have already informed the noble Member, her case has been referred to that department.

Allegations against Army Medical Hospitals.

Major STEEL asked the Secretary for War whether his attention had been called to complaints alleged to have been made by patients in army mental hospitals regarding their treatment in such hospitals; whether such complaints had been investigated; if so, with what result; whether and, if so, in what respects the system of treatment in army mental hospitals had differed from the system of treatment generally adopted in mental hospitals under public control; whether he was satisfied with the results yielded by the present system of treatment; and whether he was prepared to order an inquiry into the allegations made directly against the officials of the army mental hospitals and indirectly against the Army Medical Department.—Mr. CHURCHILL replied: My attention has been called to the alleged complaints. Strict orders were issued by the Director-General, Army Medical Service, that every complaint, however made or of whatever nature, should be immediately inquired into. These orders, I believe, have been strictly observed, and such action as inquiry justified has invariably been taken. In no case has it been found that there was ground for serious complaint, and the suggestions of careless treatment and of deliberate ill-treatment in these hospitals are unjustified. The utmost care has been taken in the treatment of soldiers suffering from early mental disorders, and the system of treatment followed, which was adopted after consultation with the most expert authorities on the subject, has been acknowledged by those best qualified to judge to be in some respects an improvement on the system generally adopted in civil mental hospitals. The results have been highly satisfactory, as is evidenced by the higher recovery-rate and the lower death-rate as compared with civil institutions of similar type. I am satisfied that the general allegations made against the officials of the army mental hospitals and the Army Medical Service are entirely unjustified, and I see no occasion for ordering an inquiry of the nature suggested.

Vaccination.

Mr. CHARLES EDWARDS asked the Minister of Health whether he was aware that more than half the children born at the present time were withheld from vaccination; whether under the present Vaccination Acts the proportion of unvaccinated children of each year's birth was steadily increasing; whether nearly 40 per cent. of the births each year were exempted from vaccination by the statutory declaration of their parents of objection to the operation; and in what way would the health of the community be involved by the repeal of the compulsory clauses of the Vaccination Acts, seeing that under present conditions such a large number of children remained unvaccinated, while small-pox was less prevalent than in the years when a far larger proportion of children were vaccinated.—Dr. ADDISON replied: The facts are approximately as stated in the first part of the question. I am, however, of opinion that the repeal of the compulsory clauses of the Vaccination Acts would result in a still larger proportion of children remaining unvaccinated, and thus the whole community would be less protected. Small-pox is prevalent at the present time in various parts of Europe, Canada, and America, and in view of the risks of the introduction of the disease into this country I am not prepared to take any action which would tend to increase the number of persons in this country who are unprotected by vaccination.

National Health Insurance Accounts.

Captain COOTE asked the Minister of Health whether he could give figures showing the receipts and expenditure for the past year under the National Health Insurance Act; whether he was aware of the inadequacy, felt in many instances, of the maximum benefit of 5s. per week; and whether there was any possibility of an increase of this amount being granted, with or without an increase in the rates of contribution.—Dr. ADDISON replied: As regards the first part of the question the only figures at present available are those of receipts and payments of the National Health Insurance funds, a summary of which I am circulating. As regards the second and third parts of the question the revision of health insurance contributions and benefits has been under consideration for some time, and I hope to be in a position to introduce a Bill to amend the existing provisions at an early date. The summary of accounts is as follows:—

Statement of Receipts and Payments of the National Health Insurance Funds (England and Wales) in the Year 1919.

RECEIPTS.		£
Balance at Dec. 31st, 1918		801,880
Sale of stamps		14,386,898
Contributions paid in cash		1,730,275
Exchequer grants		6,609,226
Interest on investments in securities selected by societies held on behalf of societies		247,213
Sums withdrawn from temporary investment		415,000
		£24,190,492
PAYMENTS.		
Issues to meet cost of benefits and expenses of administration:—	£	
Approved Societies	8,695,898	
Insurance Committees, &c.	7,068,017	
Deposit contributors and Navy and Army Insurance Fund, &c.	184,009	
		15,947,924
Issues to Societies for Investment		7,810,989
National Debt Commissioners: Investments on behalf of Approved Societies (Officers) Guarantee Funds		2,800
Miscellaneous		1,329
Balance at 31st December, 1919		427,450
		£24,190,492

THURSDAY, FEB. 19TH.

War Office and Metropolitan Asylums.

Lieutenant-Colonel JAMES asked the Secretary for War if he would state the number of beds belonging to the Metropolitan Asylums Board still held by the War Office.—Mr. CHURCHILL replied: Only three Metropolitan Asylums Board institutions are not yet handed back to that Board—the Tooting Grove, the Lower Southern Hospital at Dartford, and the Orchard Hospital at Dartford. These three hospitals are empty or in process of being evacuated and will be finally handed over on the 29th of this month. It is understood that for the purposes of accommodation for civilian infectious cases the number of beds in these three institutions is reckoned at 1947.

Dental Legislation.

Mr. RAFFAN asked the Minister of Health whether it was proposed to introduce legislation during the present session of Parliament for the purpose of carrying out the recommendations of the Departmental Committee on the Dentists Act, 1878.—Dr. ADDISON: It is hoped to introduce legislation during this session, but I am not yet in a position to make a definite statement.

Veterinary Surgeons Act, 1881, Amendment.

Sir WATSON CHEYNE presented a Bill "to amend the Acts relating to the practice of veterinary surgery and medicine." The Bill was read a first time.

MONDAY, FEB. 23RD.

Precautionary Measures in Influenza.

Dr. NATHAN RAW asked the Minister of Health whether he could make any statement as to the incidence of influenza in this country, and what preparations had been made by the Minister of Health for dealing with an epidemic should it occur.—Dr. ADDISON replied: There has been a slight increase in the number of deaths from influenza during recent weeks and a few significant outbreaks in schools and other institutions, but otherwise there is no evidence at present of unusual prevalence of the disease in this country comparable to the definite new waves of influenza which are occurring in American cities and on the Continent. The Ministry keep a constant watch on the occurrence of influenza at home and abroad, and have put themselves in a position to observe closely the progress of any epidemic wherever it may occur. Information is derived from returns as to epidemics obtained from Consular agents and from other official sources all over the world. As regards the prevalence of the disease at home information is obtained from the weekly returns of influenza mortality in the 96 great towns issued by the Registrar-General and from returns of cases of acute influenzal-pneumonia, the notification of which is not obligatory on all medical practitioners in England and Wales. Returns of cases of influenza are also furnished voluntarily every week by a number of schools, institutions, and representative industrial firms throughout the country. All data on the subject, statistical as well as scientific, come before an Influenza Committee, which is a Medical Standing Committee of the Ministry of Health holding frequent meetings and on which sit medical representatives of various Government Departments. A vaccine against influenza has been prepared by the Ministry and is now being issued on demand to medical officers of health for distribution free of charge among medical practitioners within their districts. Careful consideration has been given to all practicable means of protecting the country from the introduction of influenza through the ports. The knowledge and experience accumulated during recent epidemics have been collected and issued to local authorities at various times in the last 12 months. A Memorandum has been issued to local authorities explaining the measures (both administrative and personal) which with our present knowledge are deemed best calculated to prevent the spread of influenza and to lessen mortality from the disease. A popular leaflet has also been issued and widely circulated through local authorities setting out the best measures of guarding against infection, together with advice to patients as to the best known means of securing a speedy return of convalescence and the avoidance of those complications which constitute the special danger of influenza. Meanwhile, much active investigation continues by the medical officers of the Ministry into the causes of epidemics of influenza. Special inquiry is being made by them in selected districts into such questions as immunity, the effects of overcrowding, incidence according to age, and so on. In certain of these areas arrangements have been made, in consultation with the Medical Research Committee, for the coöperation of medical officers of the Ministry, medical officers of health, and bacteriologists in the investigation of the origin, the spread, and best means of combating the disease.

Professional Training for Ex-Service Men.

Replying to Mr. ALFRED DAVIES, Sir R. HORNE (Minister of Labour) stated that he understood from the Minister of Education that he had sanctioned grants to some 2408 men training in the medical and dental professions.

Part-time and Whole-time Medical Remuneration.

Major HENDERSON asked the Parliamentary Secretary to the Pensions Ministry if he would state the remuneration of part-time and whole-time medical officers employed in the London area.—Sir J. CRAIG replied: Part-time medical officers are paid by a fee per session of two and a half hours. The fee varies from 1¼ guineas to 2 guineas, according to the class of work required. Whole-time medical officers in the London area are paid annual salaries ranging from £750 to £1200.

Schools for Defective and Epileptic Children.

Major HILLS asked the President of the Board of Education if he would state when the obligation to establish special schools, other than boarding schools, for physically defective and epileptic children became operative.—Mr. FISHER replied: Section 20 of the Education Act, 1918, comes into operation on April 1st next.

Treatment of Service Mental Cases.

The House went into Committee of Supply on Army Estimates for 1920-21, Mr. WHITLEY in the chair.

On a vote on account of £75,000,000 for Army Services,

Mr. SPOOR called attention to the War Office treatment of mental cases. Nothing that modern science or human goodwill could do, he said, was too much to be done for these men. Allegations had been made in the press of a most serious character. If 15 per cent. of truth was contained in those allegations there was abundant justification for an immediate and impartial inquiry. The honourable Member quoted from a paragraph which he said had appeared in the *Daily Herald* to the effect that it was estimated that between 20.000 and 30,000 shell-shock patients had been treated in the military hospitals. Many of the brave men sent back from France speechless or witless for the time being through shock were given the treatment of prisoners in gaol.

Sir A. WILLIAMSON, replying for the War Office, said that in 1915 the President of the Royal College of Physicians, at the invitation of the Army Council, arranged for a committee of members of the College to visit the various military hospitals in which nerve shock and mental cases were being treated and to submit a report on the adequacy or otherwise of the arrangements made for the care and treatment of the patients. There was a report which was satisfactory, and further supervision had been made of these hospitals and asylums and patients. Hospitals were frequently visited and it was the unvarying rule that any complaint was immediately investigated. Some cases had been investigated and there was found to be no foundation for the statements which had been made. Several allegations had been made, however, against the Lord Derby War Hospital, and the visiting committee and the hospital immediately pressed for an independent inquiry, and the War Office authorities were fully prepared to offer every facility for the fullest inquiry on a prima facie case for inquiry being shown.

Brigadier-General PAGE CROFT said that he thought that Mr. Spoor should not make statements such as he had made unless he had proved the facts, because it was an unpardonable calumny against the conduct of the authorities of this country. Although he had had a great deal to do with many of these mental cases he had never heard charges of that description before.

The vote was agreed to.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. G. G. Alderson, Kenilworth; Mr. A. S. Anderson, Northampton.

B.—Mr. G. P. Blizard, Lond.; Board of Trade, Lond.; Bread and Food Reform League, Lond., Sec. of; Miss W. F. Buckley, Lond.; Dr. W. B. Bell, Liverpool.

C.—Mr. F. R. Cave, Bath; Central Council for District Nursing in London, Hon. Sec. of; Chadwick Trust, Lond.; Dr. H. C. Cameron, Lond.; Dr. R. Creasy, Lond.

D.—Dr. T. B. Davies, Lond.

F.—Mr. J. E. Frazer, Lond.

G.—General Electric Co., Lond.; Dr. W. E. Gye, Lond.; Dr. J. S. Goodall, Lond.; Great Northern Central Hospital, Lond., Sec. of; Mr. A. K. Glen, Glasgow; Dr. M. Greenwood, Loughton; Dr. R. P. Garrow, Lond.; Dr. H. H. Gellert, Lond.; Prof. J. A. Gunn, Oxford.

H.—Hunterian Society, Lond.; Mr. Hartley-Sharpey, Lond.; Prof. R. Howden, Newcastle-on-Tyne; Prof. A. J. Hall, Sheffield; Dr. I. Harris, Liverpool.

J.—Dr. J. L. Jona, Melbourne; F. Johnson, Redhill.

K.—Mr. C. M. Kennedy, Plymouth.

L.—Dr. R. L. Ley, Great Yarmouth; Prof. F. de Lapersonne, Paris.

M.—Ministry of Health, Lond.; Sir G. H. Makins, Lond.; Dr. G. Monod, Lond.; Dr. F. H. Morison, Carlisle; Dr. F. H. Moore, Thaxted.

N.—National School of Acting and Dramatic Companies, Lond.; National Council for Combating Venereal Diseases, Sec. of.

O.—Rev. E. G. O'Donoghue, Lond.

P.—Dr. A. G. Phear, Lond.

R.—Royal Society, Lond.; Royal Mail Steam Packet Co., Lond.; Dr. F. E. Rainsford, Dublin; Miss B. F. Runge, Lond.

S.—Mr. F. Souter, Lond.; Dr. G. A. Stephens, Swansea; Dr. P. Schou, Christiania; Dr. L. S. Sandeman, Aberdeen; Society of Tropical Medicine and Hygiene, Lond.; Capt. C. F. Strange, R.A.M.C.; Dr. H. Batty Shaw, Lond.; Dr. R. V. Solly, Exeter; Dr. B. H. Spilsbury, Lond.

T.—Mr. J. Tennant, Lond.; Dr. F. Thomson, Lond.

V.—Vocal Therapy Fund, Hon. Sec. of.

W.—Winget, Ltd., Lond.; West London Hospital Post-Graduate College, Sec. of; Dr. A. E. L. Wear, Leeds; Dr. H. M. Woodcock, Lond.

Z.—Mr. A. M. Zamora, Lond.

YALE UNIVERSITY.—Two Seessel Fellowships, of the value of $1000 each, are offered for original research in biological studies at Yale University. These Fellowships are open to either men or women. In making the award, preference is given to graduates of universities who have already obtained their Doctorate, and who have demonstrated by previous work their fitness to carry on successfully original research of a high order in one of the three departments of biological studies: physiology (including physiological chemistry), zoology, and botany. Applications for these Fellowships must be made to the Dean of the Graduate School, Yale University, New Haven, Connecticut, before May 1st, and should be accompanied by (1) reprints of scientific publications by the applicant; (2) letters of recommendation; (3) a statement of the particular problem to be investigated.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, March 2nd.

SURGERY: SUBSECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.

Cases and Specimens:

Mr. Laming Evans: (1) Osteosclerosis of the Femur; (2) Skiagram and Microscopic Section of Periosteal Sarcoma of the Femur.

Mr. W. T. Gordon Pugh: (1) Exostosis of the Radius; (2) Achondroplasia.

Mr. R. C. Elmslie: (1) Mid-Carpal Fracture-dislocation; (2) Cyst of the Tibia.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.

Mr. A. H. Drew and Dr. J. A. Murray: Observations on the Staining and Constitution of Mitochondria.

Dr. E. H. Kettle: Demonstration of Experimental Aspergillosis in the Rabbit.

Dr. Da Fano: Summary of Recent Work on Disseminated Sclerosis.

Wednesday, March 3rd.

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.

Specimens will be on view from 4.30 P.M.

Discussion:

On "The Remote Results of the Surgical Treatment of Gastric and Duodenal Ulcers," with exhibition of specimens. To be opened by Mr. Herbert J. Paterson. The following Members have promised to take part in the discussion:—The President (Sir John Bland-Sutton), Sir D'Arcy Power, Mr. W. G. Spencer, Dr. Robert Hutchison, Mr. James Sherren, Dr. Chas. Bolton, Mr. G. Grey Turner, Mr. Garnett Wright, Mr. Cyril Nitch, Dr. A. F. Hurst, Mr. Chas. Ryall, Mr. Jocelyn Swan, Mr. H. W. Carson, Mr. Joseph Cunning, Sir Crisp English, Mr. R. P. Rowlands, Mr. A. J. Walton.

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8 P.M.

Cases and Specimens:

Mr. Leslie Paton: Cobalt Glass for Use in Estimating Refraction.

Mr. W. H. McMullen: Lacrymal Cyst.

Papers (8.30 P.M.):

Mr. Leslie Paton: Note on the Use of Cobalt Glass in Estimating Refraction.

Mr. Charles Goulden: Treatment of Prolapse of the Iris following Accident, with a Note on the Removal of Non-magnetic Foreign Bodies from the Anterior Chamber.

Thursday, March 4th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.

Dr. W. Edgecomb: Visceral Fibrositis.

Discussion:

On Dr. Ferreyrolles's paper "Immunity and Mineral Water Treatment." (See Proceedings, vol. xii., No. 9, August, 1919.)

Exhibition by Dr. C. F. Sonntag of a Painting of Bagnigge Wells in 1790.

Members of the Section of Pathology are cordially invited to attend this meeting.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.

Specimen:

Mr. V. Zachary Cope: Interstitial Ectopic Gestation.

Short Communications:

Dr. Gordon Luker: (1) Rupture of the Bladder associated with Three Months' Pregnancy; (2) Late Post-partum Hæmorrhage treated by Blood Transfusion and Panhysterectomy.

Paper:

Mr. Gordon Ley: Utero-placental Apoplexy (Accidental Hæmorrhage). An Analysis of 50 Cases.

Friday, March 5th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4.45 P.M.

Cases and Specimens (4 P.M.) will be shown by—

Dr. Dundas Grant, Mr. Douglas Harmer, Dr. William Hill, Dr. Kelson, Sir William Milligan, Mr. W. M. Mollison, Dr. Irwin Moore, Mr. Rose, Dr. Scripture, and Dr. Andrew Wylie.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 1st.—9 P.M., Lettsomian Lecture: Dr. H R. Spencer: Tumours Complicating Pregnancy, Labour, and the Puerperium. (Lecture III.)

RONTGEN SOCIETY, in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, W.

TUESDAY, March 2nd.—8 P.M., General Meeting. Silvanus Thompson Memorial Lecture:—Prof. W. H. Bragg: Analysis by X Rays.

ASSURANCE MEDICAL SOCIETY, at the Medical Society of London, 11, Chandos-street, W.

WEDNESDAY, March 3rd.—5 P.M., Council Meeting. 5.30 P.M., Presidential Address:—Dr. T. D. Lister.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY, March 2nd, AND THURSDAY.—5 P.M., Milroy Lectures:—Dr. A. Castellani, C.M.G.: The Higher Fungi in Relation to Human Pathology. (Lectures II. and III.)

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, in the Hall of the College, 9, Queen-street, Edinburgh.

Monday, March 1st, Wednesday and Friday.—5 p.m., Morison Lectures:—Dr. R. G. Rows: Mental Illnesses.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—

Tuesday, March 2nd.—5 p.m., Lecture VI.

A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—

Wednesday, March 3rd.—4.30 p.m., Lecture VI.

LONDON HOSPITAL MEDICAL COLLEGE (University of London), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Monday, March 1st.—9.15 a.m., Lecture VIII.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)

Wednesday.—10 a.m., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 a.m., Lecture IX., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (University of London).

A Course of Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, March 5th.—9.15 p.m., Prof. Sir StClair Thomson: Syphilis of the Throat, Larynx, &c.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, March 1st.—11 a.m., Out-patients: Dr. Goodall. 2 p.m., In-patients: Dr. Moon.

Tuesday.—2 p.m., Out-patients: Dr. R. Wells. 3 p.m., In-patients: Dr. Gibbes.

Wednesday.—2 p.m., Out-patients: Dr. Moon. 5.30 p.m., Lecture:—Dr. Moon: Syphilis and the Circulatory System.

Thursday.—10 a.m., In-patients: Dr. Hamill: 2 p.m., Out-patients: Dr. Price.

Friday.—2 p.m., Out-patients: Dr. Gibbes. 2.30 p.m., In-patients: Dr. Wells.

Saturday.—10.30 a.m., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, March 4th.—5 p.m., Lecture VIII.:—Dr. T. G. Maitland: Hospital Treatment of Pulmonary Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, March 2nd.—2 p.m., Demonstration (I.):—Dr. A. J. Whiting: The Early Diagnosis of Pulmonary Tuberculosis. 4.30 p.m., Lecture:—Dr. J. H. Evans: Septic Conditions of the Gall Bladder and Bile Passages.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, March 1st.—2–3.30 p.m., Out-patient Clinic: Dr. Collier. 3.30 p.m., Ward Cases: Dr. Aldren Turner.

Tuesday, March 2nd.—2–3.30 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Dr. Risien Russell.

Wednesday, March 3rd.—2 p.m., Mr. Sargent: Injuries of Peripheral Nerves and their Surgical Treatment. (I.) 3.30 p.m., Dr. James Taylor: Subacute Combined Degeneration of Spinal Cord.

Thursday, March 4th.—2–3.30 p.m., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 p.m., Dr. Hinds Howell: Syphilis of the Nervous System. I.

Friday, March 5th.—2–3.30 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Ward Cases: Dr. Collier.

Saturday, March 6th.—9 a.m., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. Hinds Howell, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Saturday, Feb. 28th.—10 a.m, Mr. Banks Davis: Operations of the Throat, Nose and Ear.

Monday, March 1st.—5 p.m., Dr. Robinson: Gynæcology.

Tuesday.—5 p.m., Mr. T. Gray: Congenital Dislocation of the Hip.

Wednesday.—2 p.m., Mr. D. Armour: Special Surgical Cases.

Thursday.—5 p.m., Lecture:—Mr. Baldwin: Practical Surgery.

Friday.—5 p.m., Special Lecture:—Dr. D. Hood: Some of the Clinical Aspects of Aortic Disease.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, March 3rd.—4.30 p.m., Dr. Batty Shaw: Body Weight in Adult Consumptives.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, March 1st.—3.30 p.m., Dr. Nutt: X Ray Examination of Intestinal Tract.

Tuesday.—4 p.m., Dr. Hay: Hemianopia: Cerebral Localisation.

Wednesday.—3.30 p.m., Dr. Wilkinson: Minor Aural Cases and their Management.

Thursday.—3.30 p.m., Dr. Skinner: Acne Vulgaris: Ringworm, &c.

Friday.—4 p.m., Dr. Hay: Diseases of Retina and Choroid.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

Wednesday, March 3rd.—4.15 p.m., Dr. E. Assinder: Pathological Aspect of Venereal Disease.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, March 2nd.—4.30 p.m., Lecture:—Prof. H. R. Dean: The Wassermann Reaction.

SALFORD ROYAL HOSPITAL and ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, March 4th.—4.30 p.m., Lecture:—Dr. Ashby: Treatment of Heart Disease in Children. (At Salford Royal Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Sussex County Hospital.

Thursday, March 4th.—4 p.m., Clinical Demonstration.

Appointments

Chronnell, J., M.R.C.S., L.R.C.P., has been re-appointed Whole-time Officer to the Urban District of Hindley.

Grant, J. C. B., M.B., Ch.B. Glasg., has been appointed to the Chair of Anatomy in the University of Manitoba.

Pearson, W. J., D.M. Oxon., M.R.C.P. Lond., Physician to Out-patients, Hospital for Sick Children, Great Ormond-street.

Saint, C. F. M., C.B.E., M.S., F.R.C.S., Professor of Surgery in the University of Cape Town.

Stibbe, E. P., M.R.C.S., L.R.C.P. Lond., to the Chair of Anatomy in the School of Mines and Technology, Johannesburg.

Warburton, G. B., Ch.M., F.R.C.S. Eng., Assistant Surgeon, Manchester Children's Hospital.

Williamson, A. J., M.D., D.P.H., Assistant Medical Officer of Health for Essex and Medical Officer of Health for the Lexden and Winstree Rural District.

Certifying Surgeons under the Factory and Workshop Acts: Browne, H. J. M., M.D. Edin. (Hoylake); Smith, J. G. (Buckie); Lister, T. E., M.B., Ch.B. Leeds (Wakefield); Cutler, F. J., M.R.C.S., L.R.C.P. Lond. (Hastings); Binns, C. C. H., M.B., B.C. Cantab. (Leicester, East); Leigh, H. V., M.B., B.S. Durh. (Nelson).

School Medical Inspectors to the Essex Education Committee: Rankine, Mary D., M.B. Edin., and Weir, Mary M., M.B. Glasg.

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Asst. H.S. £200. Second Asst. H.S. £150.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170.

Birmingham Dudley-road Hospital.—Sen. Asst. M.O. £375. Also Jun. M.O. £275.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

Bristol General Hospital.—Pathologist and Curator of the Museum. £500. Also Two H.P.'s, H.S., Obstet.O., and H.S. All £175.

Bristol, Ham Green Isolation Hospital and Sanatorium, Pill, near Bristol.—Asst. Res. M.O. £300.

Cambridge, Addenbrooke's Hospital.—Hon. Asst. P.

Cambridgeshire Mental Hospital, Fulbourn, near Cambridge.—Asst. M.O. £400.

Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.

Chichester, West Sussex County Mental Hospital.—Second Asst. M.O. £350.

City Dispensary, 29 and 30, College-street, Dowgate Hill, E.C.—P.

Croydon Borough Hospital for Infectious Diseases.—Res. M.O. £500. Asst. Res. M.O. £350.

Croydon County Borough Mental Hospital, Upper Warlingham, Surrey.—Second Asst. M.O. £500.

Derby, Derbyshire Royal Infirmary.—Ophth. H.S. £200. Asst. H.S. and Cas. O. £200.

Devonport, Royal Albert Hospital.—H.S. £200.

Doncaster Borough.—Asst. M.O. and Sch. M.O. £500.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

East Suffolk County Education Committee.—Dentist. £400.

Essex County Council and Clacton Urban District Council.—Asst. County M.O.H. and M.O.H. £600.

Essex County Council.—Asst. County and Sch. M.O. and Mental Expert. £750.

Gateshead Dispensary.—Asst. M.O.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

Great Northern Central Hospital, Holloway, London, N.—Path. Asst. 300 gs. Also S.

Hampstead Infirmary.—Res. Med. Supt. £700.

Huddersfield, Bradley Wood Sanatorium for Pulmonary and Surgical Tuberculosis.—Res. M.O. £500.

Johannesburg (University of South Africa), South African Medical School of Mines and Technology.—Prof. Vet. Anat. £800.

Lancashire County Council, School Medical and Child Welfare Department.—Two Asst. County M.O.'s. £800.

Lancaster County Asylum.—Asst. M.O. £300.

Leeds Education Committee.—Sen. Sch. Dent. O. £600. Asst. Sch. Dent. O. £450.

Leeds Public Dispensary.—Res. M.O. £200. Also Hon. Radiologist.

Leicester City Hospital and Sanatorium, Groby-road.—Two Res. M.O.'s. £400 and £300.

Liverpool, David Lewis Northern Hospital.—Two H.P.'s and Three H.S.'s. £150.

Liverpool, Royal Southern Hospital.—Hon. Ophthal. S. Also Hon. Asst. P. Also two H.P.'s and three H.S.'s £100.

Liverpool, West Derby Union, Mill-road Infirmary.—Asst. Res. M.O. £280.

London Lock Hospital, Harrow-road, W.—H.S. £300.
London Temperance Hospital, Hampstead-road, N.W.—Medical Registrar. 40 guineas.
Loughborough and District General Hospital and Dispensary.—Res. H.S. £200.
Maidenhead, Bray Court, Home for Neurasthenic Sailors and Soldiers.—Res. M.O. £500.
Maidstone, Kent County Ophthalmic Hospital.—Hon. Aural S.
Maidstone, West Kent General Hospital.—H.P. £200.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150. Also Asst. P. £50.
Manchester, St. Mary's Hospitals for Women and Children.—Asst. M.O. £75.
Manchester Royal Eye Hospital.—Hon. P. Also Jun. H.S. £120.
Middlesex Hospital.—Cas. Surg. O.
Miller General Hospital for South-East London, Greenwich, S.E.—M.O. Also H.P. and Registrar. £100.
Monmouthshire Education Committee.—Asst. M.O. £500. Also Sch. Dentist. £400.
Newark-on-Trent, Newark Hospital and Dispensary.—Res. H.S.
Newcastle-upon-Tyne, City Hospital for Infectious Diseases, Walker Gate.—Res. M. Asst. £350.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth. £120.
Newport Education Committee.—Dentist. £500.
Norwich City.—Asst. Sch. M.O. £500.
Norwich, Norfolk and Norwich Hospital.—H.S. £200.
Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept. Also H.P. £150.
Portsmouth Workhouse Infirmary, Workhouse and Children's Home.—First. Asst. M.O. £300.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S.
Queen Mary's Hospital for East End, Stratford, E.—H.P. and H.S.
Queensland, Institute Tropical Medicine, Townsville.—Physiologist and Biochemist. £700.
Reading, Royal Berkshire Hospital.—Pathologist. £600.
Rousay and Egilshay, Orkney.—Res. M.O. £300.
Royal Chest Hospital, City-road, E.C.—H.P. £120.
Royal Institute of Public Health, 37, Russell-square, London, W.C.—Sen. Demonstrator of Bacteriology.
St. Bartholomew's Hospital and College.—Demonstr. of Pathology.
St. Mary's Hospital for Women and Children, Plaistow, London, E.—Res. M.O. £200.
Salford Royal Hospital.—Res. S.O. £250. H.P. £200. H.S., Jun. H.S., and Cas. H.S., £150 each.
Scunthorpe and Frodingham Urban District Council.—M.O.H. and Venereal Diseases Officer. £600.
Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—P. 50 gs. Three Anæsth.'s. 50 gs. H.S. £100.
Sheffield Children's Hospital.—H.S. £200.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—Radiologist. £100.
Southampton, Royal South Hants and Southampton Hospital.—Sen H.S. £250. H.P. £150.
Southport General Infirmary.—Jun. H.S. £175.
South Russia.—M.O. as Medical Adviser to Red Cross Unit. £700.
Stamford, Rutland, and General Infirmary.—H.S. £200.
Sunderland, Royal Infirmary, Children's Hospital.—Res. M.O. £200.
Taunton and Somerset Hospital.—Hon. P. and Hon. S.
Turks and Caicos Islands.—M.O. £400.
University College Hospital Medical School.—Radcliffe Crocker Travelling Scholarship in Dermatology. £280.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—P.'s.
Warwick County Lunatic Asylum.—Sec. Asst. M.O. £300.
Wigan County Borough Education Committee.—Sch. Dentist. £150.
Willesden Institution, Acton Lane.—Res. Asst. M.O. £300.
Winchester, Royal Hampshire County Hospital.—H.P. £250.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Toddington, Berkeley, Lochgilphead, Bruff, Clonakilty, Belturbet, Halstead, Stock, Stourport, and at Romford.

Births, Marriages, and Deaths.

BIRTHS.

BANBURY.—On 26th January, at 107, East Dulwich Grove, S.E., the wife of R. A. Banbury, M.R.C.S., L.R.C.P., of a daughter.

MALING.—On Feb. 13th, at Walthamstow, the wife of G. A. Maling, V.C., M.B., of a son.

THOMPSON.—On Feb. 19th, at Royal Hospital, Chelsea, the wife of Major R. J. C. Thompson, C.M.G., D.S.O., R.A.M.C., of a son.

WILLIAMSON.—On the 23rd February, at "Thurlstone," Kingston-road, Romford, to Dr. and Mrs. A. J. Williamson—a son.

MARRIAGES.

WESTBY—MCMULLEN.—On Feb. 16th, 1920, at St. Ann's Church, Dublin, by Rev. B. W. Keymer, C.F., R.A.F., assisted by the Rev. Canon Day, Vicar, John Thorp Westby, M.B., B.Ch. (T.C.D.), only son of the late Dr. A. J. Westby and Mrs. Westby, 32, Waterloo-road, Dublin, to Marjorie McMullen, L.R.C.P. & S.I., younger daughter of the late Robert B. McMullen and Mrs. McMullen, 2, Arranmore-road, Herbert Park, Dublin.

DEATHS.

ADCOCK.—On Feb. 20th, at Purbeck House, Weymouth, Brigade Surgeon John Adcock, Army Medical Service, aged 82 years.

FERGUSSON.—On Feb. 21st, at the Hydropathic Establishment, Great Malvern, John Campbell Fergusson, M.D., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., in his 85th year.

WHIPPLE.—On Feb. 20th, at Redcliffe-square, South Kensington, Lieutenant-Colonel John Henry Connell Whipple, M.D., A.M.S. (retd.), late Coldstream Guards, in his 79th year.

WORNUM.—On Feb. 18th, at Hillside, Farningham, Kent, George Porter Wornum, M.R.C.S., aged 62 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE INSANITY OF JOHN BUNYAN.[1]

BY THE REV. E. G. O'DONOGHUE.

CHAPLAIN OF BETHLEM ROYAL HOSPITAL.

SO far as I can ascertain, nobody has hitherto realised that Bunyan was insane, in the technical and medical sense of the word, for three or four years of his life—say between 1650 and 1653. His book, "Grace Abounding," contains particulars sufficient to fill up the certificate and case-book of the mental specialist. Premonitory symptoms of the latent disease manifested themselves from time to time, and in 1651 the "great storm came stealing" upon him, and "floods of blasphemies," unprovoked and unexpected, overwhelmed his mind. The "unpardonable sin" began to have a horrible fascination for him. He "desired to commit it," and soon came to believe that he had committed it. Sometimes he "felt the tempter pull his clothes"; sometimes the Devil seemed to "take the form of a bull, bush, or besom," inviting him to fall down and worship him. Then for a whole year one sentence iterated and reiterated itself on the anvil of his diseased brain, "Sell Christ!" "Sell Christ!" "Sell Christ!"

For two whole years at least, as I understand the narrative, the "masterless hounds of hell ran over his soul, roaring and bellowing." He had, at last, committed the unpardonable sin; he was now racked day and night with the anticipation of descending before another day had passed into eternal torment. Like other victims of religious melancholia, he added to his physical agitation and mental agony by ransacking the Scriptures to justify the appalling sentence of everlasting damnation pronounced against his soul!

Such was the fiery trial which made John Bunyan what he came to be. Out of it came the iron—dug in darkness, heated red hot in the furnace of his afflictions, tempered in the bath of his own tears—which went to the building up of his greatest work, the "Pilgrim's Progress."

The armour of Christian is dinted with the marks of his terrible conflict with Apollyon. But it was John Bunyan himself who could find no firm ground under his feet in the slough of religious despondency. It was he who had been in the iron cage when he thought that he had "sold Christ," and "committed the sin against the Holy Ghost." John Bunyan, and none but he, had been through the Valley of the Shadow of Death before he wrote about it; in it he had uttered the grievous blasphemies which the fiend seemed to have put into his mouth; on his pilgrimage through it "clouds of confusion" had sometimes settled on his head, sometimes "doleful voices" moaned in his ear, or he heard a "company of fiends rushing and yelling" around him.

Christian was not the only pilgrim who heard "Bedlam" shouted after him in Vanity Fair.

THE NEW PHYSICAL EDUCATION.

IN THE LANCET of Jan. 31st we published an address on physical training delivered before the Royal Society of Medicine by Surgeon Commander K. Digby Bell, of the Royal Naval School of Physical and Recreational Training, Portsmouth. In the course of this address he quoted a scheme elaborated by Commander B. T. Coote, in which activity, energy, and character were developed by physical, recreational, and moral training. On Feb. 19th, at the Royal Sanitary Institute, under the auspices of the Child Study Society, Commander Coote himself delivered a lecture on Physical Education and its Relation to National Ideals, in which he showed how the system could be applied to the promotion of the health and character of a people. Physical education, he said, was a science not sufficiently developed or understood in this country, and, although school prospectuses called attention to the teaching of physical culture and drill, parents had not troubled to find out in what its virtue consisted. A boy might bring home a silver cup—and incidentally a spinal curvature—but nothing had been done to study his physical well-being from a scientific point of view. Commander Coote showed on the screen some of the evil effects of the uncontrolled physical exercises encouraged in some schools—boys with round shoulders, hollow spines, flat chests, and pot-bellies. It was the duty of the physical trainer to prevent these deformities. By means of diagrams drawn from individual cases he showed the evil effects of certain collars in preventing head and chest movements, the tendency to curved spine as the result of carrying ooks under one arm with the opposite hand in the pocket, nd various unhygienic reading, writing, and sleeping ostures. These indicated the need for continuous physical raining. Any existing weakness should be corrected at nce, lest it should increase later and lead to serious trouble. escribing the ingenious and effective method of teaching wimming in the navy, he said that the real work was done n dry land. The positions assumed in the breast stroke vere analysed into four collective movements, and these vere shown in diagrams at the end of a large hall. The men aid themselves on a sort of bench, and with their eyes fixed n the diagrams carried out the movements until perfect. hey were then given a life-saving belt so constructed that when in the water the swimmer assumed the proper posiion. Many men could swim ten lengths of the bath at their first attempt with this belt, which is removed as soon as knowledge and confidence have been attained. The number of lessons necessary average from eight to nine.

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[1] Being a portion of a paper read before the Royal Society of Arts on Feb. 13th.

Some of the physical exercises used at school were destructive in their effects—he instanced certain uses of the parallel bars—but with the help of the medical profession this fact could be demonstrated to those in charge, and the exercises forbidden. This country had the reputation of being the most sporting nation as far as games were concerned, but the majority of the people did not play games at all. If we were going to use recreation to develop energy some form of recreation must be found that would appeal to the majority. Fortunately, some 300 games were capable of being utilised for this purpose. He hoped, however, that recreational training would not be the thin end of the wedge for doing away with physical training. Games had necessarily a constructive value. In order to develop character in the pupil the physical educationalist must study the mind. Appeal to the moral side of the boy's character could be made, and instruction with regard to the abuse of his body could be given openly and effectively. Physical training, as he understood it, was a science and a part of preventive medicine. If we treated physical education in such a way as to be of value throughout the country much could be done to prevent industrial unrest.

COLONIAL HEALTH REPORTS.

Bermuda.

ACCORDING to a report prepared by Mr. W. B. Jackson, Colonial Secretary, the resident population, exclusive of the naval and military establishment, has been slowly increasing during the last decade. At the Census of 1911 it was estimated at 18,994. On Jan. 1st, 1919, it was computed at 21,840—7433 white and 14,397 coloured.

The birth-rate during 1918 was 27·10 per 1000—21·63 among the white population and 29·93 among the coloured. The illegitimacy rate was 2·3 per 100 births among whites and 18·6 per cent. among coloured persons. The death-rate of 14·37 per 1000 among whites and 24·10 per 1000 among the coloured population was higher than usual, being affected by an outbreak of Spanish influenza in September, which was responsible for about 125 deaths amongst about 5000 cases. There has been no recrudescence since the outbreak. The great majority of deaths from influenza occurred among the coloured population and were attributable in some cases to failure on the part of the patients to observe proper precautions, and in others to enfeebled physical condition, such as pre-existing tuberculous tendencies. It is many years since the islands have been visited by an epidemic of so severe a character; and the unusually favourable health conditions normally prevailing intensified the impression caused. The colony is blessed with natural conditions of climate and geographical position which should make it one of the healthiest spots in the world. Except for a period of about three months during the summer, when the atmosphere is especially humid and conditions somewhat enervating, the climate is remarkably agreeable and mild. Free from extremes either of heat or cold, and situated in mid-ocean with no land nearer than 500 miles, the islands offer the conditions of air and atmosphere prevailing on a very large ship in temperate latitudes, with none of the discomforts attendant on a sea-voyage. Their freedom from serious infections is due largely to these conditions. The rainfall during 1918 was 64·16 inches, being some 8 inches above the average of the preceding nine years. Rain fell on 155 days, being most frequent and heaviest in November and April. The highest temperature recorded was 88·8° F. on August 14th, and the lowest 48° on Feb. 6th. Mean relative humidity was 88°.

British Guiana.

The Registrar-General's estimate of the population of the colony on Dec. 31st, 1918, was 310,972 (161,693 males and 149,279 females).

The birth-rate for 1918 was 25·1 per 1000, compared with a mean rate for the previous five years of 31·0 per 1000. Of the births registered 3401, or 43·7 per cent., were legitimate, and 4390, or 56·3 per cent., illegitimate. The birth-rates of the several races representing the community were, per 1000 of the estimated population, as follows: Portuguese, 23·1; Europeans other than Portuguese, 12·2; East Indians, 23·3; Chinese, 31·7; blacks, 25·2; mixed races, 27·0. The death-rate was 40·6 per 1000, as against 30·4 in 1917 and 27·1 in 1916. The death-rate of the various races was: Portuguese, 35·3 per 1000; Europeans other than Portuguese, 13·5; East Indians, 49·4; Chinese, 28·2; blacks, 35·7; mixed races, 25·0. Enteric fever is a notifiable disease, and in 1918 637 cases were notified with 129 deaths. Anti-malaria and anti-mosquito measures are being generally and gradually enforced, with visible signs of success. Ankylostomiasis, which has engaged the attention of the Medical Department for several years, has considerably decreased on the sugar estates; this is attributed to improved sanitary measures and the erection of latrines. There are five public hospitals in the principal centres of population, and the outlying districts are served by dispensary hospitals and dispensaries. The immigration law also requires the maintenance of hospitals on every plantation on which there are indentured East Indian labourers, and those institutions are available for the treatment of emergency and pauper cases from the general community. There were 479 patients in the public hospitals at the beginning of 1918, and 15,890 were admitted during the year; the deaths numbered 2072. Outdoor treatment was given to 52,954 persons. At the Leper Asylum there were when the year began 212 males and 82 females. During the year 79 were admitted.

East Africa Protectorate.

The report respecting the affairs of the Protectorate for the year 1917–18 estimates the total population at 2,651,771, made up of 5362 Europeans, 14,693 Indians, 2126 Goans, 7358 Arabs, 69 of other races, and 2,622,163 natives.

The general health of the country was exceptionally good. Malaria, as usual, was common everywhere, and few districts escaped dysentery and the occurrence of sporadic cases of smallpox. The desert areas suffered notably from beri-beri. A small epidemic of influenza was reported from Meru. Plague reappeared in Mombasa on April 25th, 1917. Further cases were discovered on May 19th, and it appeared at intervals in various localities subsequent to that date. Of the 101 cases recorded, 84, with 78 deaths, were among the uninoculated, and 17 cases, with 10 deaths, among those who had received prophylactic protection. In Nairobi the case-incidence was somewhat higher. The disease originated in the Indian bazaar, and spread rapidly to other quarters of the town and to the native villages on its perimeter. 20,776 rats were caught, of which 37 were found to be infected. The total number of inoculations against plague was 100,214, as against 18,273 in 1916 and 6878 in 1915. 796 cases of cerebro-spinal meningitis, with 615 deaths, were reported from 12 districts extending from the coast to Lake Victoria. This is a considerable increase over every year since 1913. 2613 cases of dysentery were observed, with 160 deaths. In addition to these the medical officers of health have reported 2559 deaths from dysentery and diarrhœa in the townships of Mombasa, Nairobi, and Kisumu.

A NURSES' CLUB AT BRIGHTON.

"THE first of its kind to be established in the United Kingdom" was a remark made by Sir Arthur Stanley at Brighton on Feb. 21st, when he opened, at 45, Marine Parade, a residential club for nurses, in connexion with the Brighton and Hove Centre of the College of Nursing. Edinburgh and Dublin are copying the example of Brighton, and Sir Arthur Stanley expressed the hope that ere long he would be able to say the same of London. The Brighton Club permits of accommodation for 15 nurses, and the premises have been loaned free until 1927 by the owner, Mr. C. R. Scrase Dickins. Dr. E. Hobhouse (one of the senior physicians), Miss Kathleen Scott (matron), and Miss Latham (under matron), of the Royal Sussex County Hospital, hold the respective offices of chairman of the finance committee, chairman of the executive committee, and honorary secretary and treasurer.

SMELLS AT LOWESTOFT.

PROVISION is made under the Public Health Act of 1875 to deal with objectionable smells or effluvia arising from the process of manufacture. The Lowestoft Fish Meal and Cake Company was recently prosecuted under Section 114 of this Act for carrying on the manufacture of meal and manure from fish offal in such a way as to cause effluvia which were a nuisance to some of the inhabitants of the town. In November, 1918, this company applied for permission to establish a factory under Section 112 of the Public Health Act, which provided that if an offensive smell occurred heavy penalties would ensue. Permission was not granted, in spite of which the factory was opened without consent in July, 1919. The corporation recently received a memorial complaining of the nuisance from 34 residents living near the factory, in consequence of which the sanitary authority brought this prosecution.

Evidence was given before the magistrates by the sanitary inspector for the borough, who stated that the fumes which came from the factory were of a sickly nature and filled the atmosphere. He said he was not satisfied with the way in which the plant was worked inside the factory, and thought the nuisance could be abated if the plant was altered and the fire allowed to consume the fumes. Dr. A. Marshall, medical officer of health, said that in his opinion there were good grounds for the complaint, as the smell was unbearable. He considered that if the fumes were passed through a condenser and the chimney heightened to 60 feet the nuisance would probably cease. Several residents gave evidence as to the disagreeable nature of the effluvia from the manufacture. The firm stated, through their solicitor, that they had no wish to cause a nuisance, and asked the magistrates to adjourn the case in order that various alterations could be made. They suggested that a 2000-gallon tank should be attached to the condenser and the fumes passed through the tank and sprayed. This suggestion was agreed to.

HOSPITALISATION OF INFLUENZA.

THERE is a growing feeling in America against the removal from their homes of patients suffering from influenza. A recent bulletin of the Chicago School of Sanitary Instruction contains a manifesto by Dr. J. D. Robertson to the physicians of Chicago in which he says:—

> I am convinced that in the present outbreak of influenza the wise and proper thing to do is to insist upon home treatment and care of influenza cases, rather than hospitalisation. Only such cases should be hospitalised as cannot possibly be taken care of in the home.
>
> There is a large element of risk in taking a patient with a temperature from a warm bed and room into an unheated ambulance and transporting such patient several miles to a hospital, where probably another long wait must be endured before finally being comfortably provided for. This procedure greatly increases the chances of pneumonia complications.
>
> I think it will be found that most influenza cases can be taken care of in their homes with much better chances of recovery than would be afforded by removal to hospitals. The Department is doing all it can to supply nurses to families where there is the most urgent need. I have had many requests for nurses in homes where there were well members of the family and probably one or more servants who could take care of the sick, and in such cases we have declined to furnish nurses in order to husband our supply for cases where those who are sick are unable to get nursing care of any kind.

Dr. Robertson concludes by urging the Chicago physicians to coöperate with the Health Department in advising home care of influenza patients in all cases where it is possible.

SUMMER-TIME, 1920.

SUMMER-TIME will commence this year on Sunday, March 28th, and end on Monday, Sept. 27th.

THE RANGOON BEAN.

IN the village of Lankwitz (Brandenburg) an epidemic of diarrhœa and vomiting has occurred with great physical depression following, ascribed to the use as a food of *Phaseolus lunatus*, known in commerce as the Rangoon bean, and now entering Germany in large quantity. Professor L. Lewin, of Berlin, attributes the symptoms to HCN poisoning. In France, it is stated, the import of these beans is only allowed when 100 g. yield less than 20 mg. of HCN.

THE DE-DOMESTICATION OF THE RAT.

IN the course of a lecture on Tropical and Subtropical Diseases delivered recently before the Royal Colonial Institute Dr. Louis Sambon stated that experience has shown again and again that rat extermination is practically impossible. He proceeded: "It may have been otherwise at the time when, according to that distinguished Spanish canonist Azpilcueta of Navarre, rats exorcised and ordered to depart for foreign countries, would obediently march to the coast in large bodies and thence swim off in search of desert islands where they could enjoy life without annoyance to man. Unfortunately, rats can no longer be exorcised or rhymed out of existence. In India rats are as plentiful as ever, notwithstanding the enormous destruction carried out since plague broke out. No better results were obtained in Japan where the campaign was carried out with a thoroughness characteristic of the Nippon islanders. The slaughter only renders conditions more favourable for the multiplication of the survivors. The increased mortality is met by increased birth-rate, and, as every one knows, the rat's breeding powers are incredible. Five to 10 litters in a year, 6 to 20 young in a litter, and the young able to breed in less than three months! Besides, what would be the use of destroying rats unless we made adequate provision to prevent more rats from landing? Every ship brings rats, especially grain ships, a thousand and even 1700 rat carcasses have been counted after fumigation of a single ship and thousands of ships reach our ports. What we can and should do is to render our wharves, quays, markets, store-houses, and other public buildings rat-proof. The rat must be entirely excluded from occupied buildings. He must be de-domesticated, if I may use the expression—he must be built out of existence—as Surgeon-General Blue tersely puts it. Attracted by food and cover, he has overcome every fear of man and imposed himself upon us as an effronted and dangerous commensal. The proper storage of food, the immediate removal and burning of all food-wastes, garbage, and rubbish, the destruction of places in which he may find harbourage, and the contrivance of architectural modifications apt to cut off his approach, the liberal use of concrete, wire netting, and sheet metal will certainly discourage him."

Dr. Sambon points out that the agency of the rat in the dissemination of plague was well known in ancient times. Our ancestors carefully protected and, when possible, domesticated the natural enemies of the rat and even deified some of the more useful ones, as the cat, the kestrel, and the cobra. They made special use of rat-eating species of snakes, kept great numbers of these harmless snakes in specially constructed pits in their medical temples, and sent them to be liberated wherever the disease had broken out. Thus in the year 293 B.C., Rome being ravaged by the plague, the Tribune Quintus Ugulgius went to Epidaurus at the head of a commission to ask the priest-physicians of the famous Asklepion temple what should be done to check the pestilence that was devastating the city. They brought back with them rat-eating snakes, and these soon put an end to the disease; after a time the snakes died out, but the people long continued to paint their effigies on the walls of the lararium in token of gratitude, and paid them the tribute due to protecting household gods.

MILK OF GOOD QUALITY.

IN the case of a prosecution for selling milk deficient in milk fat, which took place recently in the Isle of Wight, a novel and rather ingenious point was raised, owing to the police sergeant who purchased the samples analysed having asked the defendant for "a pint of new milk of good quality." It was contended by the prosecution that this should deprive the defendant of the defence, established by the case of Hunt *v.* Richardson, that the milk was sold by him as it came from the cow. After considerable discussion upon questions arising out of the analysis, the bench were satisfied that the milk sold was deficient in milk fat to such an extent that the defendant should be convicted, and further held that it had not been proved by the defence to have been sold as it came from the cow. In these circumstances they did not go into the other point referred to. It seems likely that if they had done so conviction would have followed, whether the milk had been proved to have been sold as it came from the cow or not. Milk not up to the standard laid down for new milk could hardly be deemed to be "of good quality." Whether straight from the cow or not it would not be of the nature and quality demanded. Unfortunately, however, the ordinary housewife or purchaser is not likely to specify "good quality" when buying milk, and the farmer or dairyman of whom such a demand was made, either by a private customer, or more particularly by an official, would be likely to scent a trap. He did not apparently do so in the case under discussion, but it would be a natural and reasonable reply for him to make if he said, "It is new milk," or "It is milk as it came from the cow"; in the subsequent event of analysis being against him the defence that the milk, whatever its quality, had not been tampered with would be open to him.

THE SMALL-POX MENACE.

To the Editor of THE LANCET.

SIR,—With reference to your annotation in THE LANCET of Feb. 7th with the above title, I note that you say there were 63 cases in England and Wales for the year 1918. According to the analysis of sickness statistics for London for the year 1918 (THE LANCET, April 12th, 1919) there were 35 notified cases in London. That makes over 50 per cent. of the cases occurred in London. In a letter from Dr. A. F. Cameron in THE LANCET of June 22nd, 1918, on small-pox in London he stated that for the first six months of 1918 there were 41 cases in London. I suppose these varying returns can be reconciled. For 1919 the total number of cases in London, according to the monthly analyses published in THE LANCET, was 26 (January, 7; March, 7; April, 2; May, 3; June, 2; and July, 5). In the first half of the year 1919, according to your latest annotation, there were 208 small-pox cases in England and Wales, so that it is obvious that in 1919 London had nothing like 50 per cent. of the cases, which is good for London. Dr. Cameron in his letter contended that the maximum intensity of small-pox in London was every nine years from 1884—that is, 1884, 1893, 1902, 1911—and added, "It seems reasonable to expect that in 1920 another maximum will be recorded." It will be interesting to learn later whether the expectation is fulfilled.

I am, Sir, yours faithfully,
ZIGZAG.

London, Feb. 10th, 1920.

H. P. U. (U.S.A.).—Under the late Turkish administration doctors possessing foreign diplomas, who were not Turkish subjects, had to pass a viva voce examination at Constantinople, conducted in French or Turkish, in order to obtain the Government diploma entitling them to practise in Palestine or any other part of Turkey. Presumably there will now be some local substitute for this obligation, although nothing appears at present to have been settled. Openings for practice in Palestine are limited. Jerusalem is overdone with medical institutions, and nose and throat specialists were already practising in Jaffa and Jerusalem before the war. An American medical man might work up a small consulting practice in such a growing centre as Haifa. In the future, as in the past, the main part of the medical work will be done by Jewish doctors ministering to their own people.

Lettsomian Lectures

ON

TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

Delivered before the Medical Society of London on Feb. 2nd and 16th, and March 1st, 1920,

By HERBERT R. SPENCER, M.D., B.S. Lond., F.R.C.P. Lond.,
OBSTETRIC PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL.

LECTURE III.[*]

Cancer of the Uterus Complicating Pregnancy, Labour, and the Puerperium.

The rarity of the combination of cancer of the uterus with pregnancy is shown by the fact that few gynæcologists have published even such a small list (10 cases) as that which I have been able to collect among my own cases. Even then the cases have not been all personally treated by the authors, but are often the collected cases of clinics published in inaugural dissertations and theses, the writers of which are inexperienced and are wanting in the intimate knowledge which only personal attendance can give. In the clinic of Professor Wertheim, who has had such an extensive experience of this disease, amongst 250 cases of cancer of the cervix only 6 were complicated with pregnancy, and some of these were not treated by the professor. The largest series attended at one clinic I have been able to find is that published by Glockner,[1] consisting of 17 cases from the Gynæcological Clinic of Zweifel at Leipzig, followed by a series of 10 cases from the same clinic by Aulhorn.[2] In 1904 Sarwey[3] had been able to collect from the literature only 240 cases of this complication which had been subjected to operation, and he states that v. Winckel had met with 10 cases in 20,000, Stratz 7 in 17,832, Sutugin 2 in 9000, Glockner 17 in 26,000, Orthmann 6 in 4028, Doderlein 7 in 5001, the Rostock Clinic 4 in 2287 labours, and gives the frequency as 1 in 1600 labours.

Discussion of Cases.

In Tables E and F are given brief particulars of the 10 cases of cancer of the cervix complicating pregnancy, labour, and the puerperium, which I have had under my care at University College Hospital. They comprise all the cases I have seen; I have not met with a case in private practice.

Cases 5, 6, and 7 have been published with full details in the Obstet. Soc. Trans., Vol. XLVI., for 1904. A few notes here will bring the after-histories up to a later date. In all these cases the growth was a squamous-cell carcinoma.

Case 5 (see Table F, No. 1).—E. W., aged 33 (children 4, abortion 1), was delivered on March 25th, 1893, by forceps through a cancerous cervix, of a full-term living child, which died of whooping-cough when 11 months old. The labour was slow. The patient had had a discharge of blood for eight months. There was no post-partum hæmorrhage. On April 8th, 1893, high amputation was performed with the Pacquelin cautery. On June 6th, 1894, she became pregnant in the body, which had been left behind. On March 6th, 1895, I delivered her by Cæsarean section, terminated as a Porro's operation, with extra-peritoneal treatment of the stump. This child grew up and served as a soldier in the Great War. In 1918, 25 years after the high amputation, the mother was examined by me and found to be in excellent health. (Figs. 1 and 2.)

Case 6 (see Table F, No. 2).—A. C., aged 35 (children 8, abortion 0), was admitted to U.C.H. on Jan. 3rd, 1896, when seven months pregnant. She had had hæmorrhage on coitus for seven months, and a thin, watery offensive blood-stained discharge for six months. There was a large cancerous growth on the posterior lip and left side of the cervix. Labour was induced by de Ribes's bag: the child (3 lb. 7 oz.) lived only 38 minutes. On Jan. 28th, 1896, I removed the cervix by the high amputation with the Pacquelin cautery. I have seen this patient many times since the operation. I examined her in 1918, 22 years after the operation, and found her free from recurrence and in excellent health. (Figs. 3 and 4.)

Case 7 (see Table F, No. 3).—M. S., aged 38 (children 9, abortion 0), was delivered in the maternity of U.C.H. on Jan. 25th, 1896, naturally, of a living child. She had had no bleeding during the pregnancy, but blood and shreds were passed every day afterwards. On June 5th, 4 months and 11 days after delivery, she was examined and found to have cancer of the cervix. High amputation was performed on June 30th, 1896. In 1915, 19 years after the operation, I examined the patient and found her free from recurrence and in excellent health. The child lived at least to the age of 8 years. I have no further note about her, and her mother's present address is unknown. (Figs. 5 and 6.)

Age of the Patients.

Of the 10 patients, 2 were between the ages of 20 and 30; 7 were between the ages of 30 and 40; and 1 was between the ages of 40 and 50. The youngest patient was 26, the oldest 40.

In dividing patients according to decennia "20–30," &c., a patient aged 30 should appear in the 30–40 list; some writers erroneously put the patient in the 20–30 list, and thus the statistics may be misleading. Sarwey's patients were divided into 20–30, 31–40, 41–50, which is not a decennial division at all. Of his collected series of patients, 17·8 per cent. were between 20 and 30; 64·4 per cent. were between 31 and 40; and 17·8 per cent. were between 41 and 50. Sarwey shows from the ages of 3442 cases not complicated with pregnancy that only 3 per cent. were between 20 and 30; 22·4 per cent. were between 31 and 40; 34 per cent. were between 41 and 50.

The figures show that in the child-bearing period of life cancer uncomplicated with pregnancy is at its maximum in patients over 40, but when complicated with pregnancy under 40; and that below 30 the frequency of cancer is six times as great in the pregnant as in the non-pregnant. The youngest of my patients was 26 years of age. I have never met with cancer of the cervix at an earlier age than this. Of Sarwey's collected cases the youngest (Schwarzwaller's) was only 22, the oldest was 47.

Number of Children and Abortions.

Cancer of the cervix is very rare in women who have not been impregnated. Olshausen and Döderlein have published cases of cancer complicating the first pregnancy. Cancer even in the second pregnancy is rare, having been found only six times in Sarwey's 180 cases. To these may be added my Case 3. My 10 cases had had in all 70 children and 11 miscarriages—that is, an average of 7 children and over 8 pregnancies. Six out of the 10 patients had had 8 children, and half of them had had 9 or more children, the greatest number of pregnancies being 15 (Case 9). The influence of multiparity is thus shown, as in all the statistics dealing with this combination.

Why cancer of the cervix should be almost confined to parous women and so extremely rare in virgins is a question which has been much discussed. Lacerations during labour and abortion have been supposed by many to be the causes of the development of cancer in this situation. Observations on this point are few in number;

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[*] Lectures I. and II. were published in THE LANCET of Feb. 21st and 28th, pp. 411 and 475. In the third lecture the clinical history of some of the cases is omitted.

[1] Beiträge für Geb. und Gyn., Leipzig, 1902.

[2] Archiv für Gyn., vol. xcii., p. 242.

[3] Veit's Handbuch der Gyn., vol. ii., p. 850, 1908.

No. 5036.

TABLE E.—*Author's Cases of Early*[*] *Pregnancy complicated by Cancer of the Cervix at University College Hospital, from July, 1887, to October, 1919.*

No.	Age.	Children.	Abortion.	Month of pregnancy.	Result to mother.[†]		Result to child.[†]		Mode of delivery.	Operation performed.
					Immediate.	Remote.	Immediate.	Remote.		
1	36	9	2	5th	D.[1]	—	D.	—	Natural.	No; too far advanced for curative operation; natural abortion, Sept. 8th, 1891. Admitted with fever, 103°; septic; rigor.
2	40	9	1	6th	D.[2]	—	L.	D. (in 2 days).	,,	No; too far advanced for curative operation; natural abortion, Jan. 23rd, 1895. Admitted febrile, 100°, P. 116.
3	29	1	0	6th	D.[3]	—	D.	—	Undelivered.	No; too far advanced for curative operation.
4	26	2	0	4th	L.	D.[4]	D.	—	Pregnant uterus removed.	Vaginal hysterectomy with the galvano-cautery, March 15th, 1906.

[*] Before the eighth calendar month. [†] L = lived; D = died.

[1] Sepsis, Sept. 26th, 1891. [2] Sepsis, Feb. 1st, 1895. [3] Nov. 25th, 1906, undelivered. [4] Of recurrence, Sept. 24th, 1907.

TABLE F.—*Author's Cases of Advanced*[‡] *Pregnancy complicated by Cancer of the Cervix at University College Hospital, from July, 1887, to October, 1919.*

1	33	4	1	Term	L.	Well 25 yrs.[5]	L.	D. (11 mths. later).[6]	Per vaginam, forceps.	High amputation of cervix (April 8th, 1893), a fortnight after delivery. Two years later Porro-Cæsarean section with living child, who served as a soldier in the war 1914–1918.
2	35	8	0	8th	L.	Well 22 yrs.[5]	L.	D. (in 38 min.).	Per vaginam, induction of labour by de Ribes's bag.	High amputation of cervix (Jan. 28th, 1896), 18 days after delivery.
3	38	9	0	Term	L.	Well 19 yrs.[5]	L.	Well (8 yrs. later)	Per vaginam, unassisted, easy.	High amputation of cervix (June 30th, 1896), 5 months after delivery.
4	30	6	3	8th	L.	D. (7 mths. later).	L.	L. (6 mths. later).	Per vaginam, forceps.	No; too far advanced for curative operation.
5	39	12	3	8th	L.	D. (12 mths. later).	L.	L. (6 mths. later).	Per vaginam, forceps; rupture of uterus.	No; too far advanced for curative operation. Rupture packed with iodoform gauze.
6	34	10	1	8th	L.	D. (7 mths. later).	L.	D. (15 days later).	Per abdomen, by Porro-Cæsarean section, with use of serre-nœud.	No; too far advanced for curative operation.

[‡] In the eighth or ninth calendar month. [5] After high amputation of cervix (see text). [6] Of whooping-cough.

but Sir John Williams has published a striking case where the laceration was the only part of the os not affected. It seems probable that lacerations, by exposing the cervical mucous membrane to external irritation, may tend to favour the development of cancer, but its influence is probably small; for cancer often develops in cases in which there is no sign of previous laceration, and in situations where lacerations do not occur: and, moreover, cancer of similar structure occurs in the body of the uterus in which the question of laceration does not arise.

Dr. King, of Washington, propounded a theory that the development of cancer was set up by the influence of spermatozoa in giving rise to multiplication of the epithelial cells, under certain conditions, in the same way as they cause development of the cells of the ovum. Erosions have been thought by some to be a pre-cancerous condition, and very radical methods of treatment have been suggested in consequence. As erosions are very common in virgins, in whom cancer of the cervix is met with extreme rarity, it is quite certain that erosions rarely develop into cancer. Nevertheless, in erosions are sometimes found both metaplasia and hyperplasia, and even slight downgrowth of the epithelium, which renders the differential diagnosis from early carcinoma occasionally difficult. And to the naked eye a case of this kind sometimes shows papillary, club-like, or finger-like processes, or even extensive papillomatous growths which may closely resemble cancer. These growths are, I think, sometimes the result of excessive sexual irritation and of venereal infection. And I am inclined to think that when the question of the causation of cancer of the cervix is solved it will be found that the reason why this disease is almost limited to women who have had coitus is that local venereal infection is almost limited to them. I do not know of a series of scientific investigations into the relations of syphilis, soft sores, and gonorrhœa to cancer of the cervix, but I believe it will be found to be a close one. I have twice seen cancer of the cervix develop in patients who had previously had a chancre of the cervix.

Influence of the Cancer on the Pregnancy.

Cancer of the cervix by obstructing the canal, by the hæmorrhages and discharges to which it gives rise, and the infection and inflammation which often accompany it, tends to prevent the occurrence of pregnancy, and when it occurs to produce abortion or premature labour. Of my 10 cases 2 aborted spontaneously at the fifth and sixth month. Case 3 died undelivered, from coma, probably due to syphilitic brain disease, possibly to renal disease from pressure on the ureters. Case 4 was operated on at the fourth month. Of the remaining 6 cases 4 were delivered prematurely at the eighth calendar month; one of these was induced; the other two were at term. Both the cases which aborted were septic on admission to the hospital, and it is probable that the infection brought on the abortion. Apart from this there does not appear to be a great tendency for abortion to occur in the early months. Of the 6 cases of pregnancy in the eighth and ninth calendar months, in no less than 3 labour came on prematurely, which seems to show a great tendency to premature delivery.

The growth may in some cases be so extensive as to prevent the delivery of the child, and "missed labour" may occur. In Case 9 the uterus ruptured during labour.

It is to hæmorrhage, sepsis, and rupture of the uterus that the high mortality of this complication is due.

Influence of the Pregnancy on the Cancer.

The influence of the pregnancy on the cancer has been varied in different cases. Zweifel's case, in which the growth extended by two fingers' breadth in the course of a fortnight, has probably attracted unusual attention from the method employed to estimate the rate of growth, viz., passing a thread through the edge of the growth—a procedure not altogether free from risk! In Case 9 the growth apparently did not alter in size at all during nearly two months' daily observation. After the labour it diminished at first, but began to increase about two months later. The three cases (8, 9, 10) which were inoperable survived from 7 to 12 months, which does not show any marked rapidity of growth after delivery, seeing that in all the cases the growth had reached an advanced stage at the time of delivery, which was difficult (forceps, Cæsarean section, forceps for rupture of uterus).

Symptoms.

Of the three chief symptoms of cancer of the cervix, hæmorrhage, discharge, and pain, the most important is the hæmorrhage. When the cancer complicates pregnancy the hæmorrhage may lead the patient to think she is not pregnant or has miscarried.

Hæmorrhage as the result of coitus is a symptom of the greatest importance. It occurred as the first symptom in Case 6, and was followed by a characteristic thin, watery, offensive, blood-stained discharge, which, after it had existed for six months, led the patient to seek advice. In some cases, however, the growth does not bleed as a result of pressure upon it. An instance of this was Case 9, and Kreps[4] has published a similar one. In some cases the hæmorrhage occurs at approximately monthly periods, and thus leads the patient into error with regard to the presence or duration of pregnancy.

The second cardinal symptom, discharge, is often the first in point of time, but is unnoticed by the patient, owing to the frequency with which it occurs from other causes. When, however, it is watery and discoloured, or blood-stained, it should at once arouse suspicion; an offensive discharge is due to necrosis, and often occurs only in the later stages of the growth.

The third cardinal symptom, pain, ordinarily does not occur in cancer of the unimpregnated uterus until the growth has extended beyond the organ; occasionally inflammation resulting from bacterial infection will cause it to appear while the growth is limited to the cervix. In cases complicated by pregnancy, pain may occur at an earlier date, being due to contractions of the uterus or to a threatened or actual abortion, as well as to septicæmic infection, which is very prone to occur in these cases (1 and 2). The secondary symptoms—wasting, malaise, cachexia, pressure symptoms—do not differ from those met with apart from pregnancy.

Diagnosis.

Cancer of the uterus complicating pregnancy always affects the cervix: there is, so far as I know, no case recorded of cancer of the body complicating pregnancy which will stand investigation. The cases formerly published were either cases of chorion-epithelioma or sarcoma. In making the diagnosis, three methods are employed (*a*) digital pelvic examination, (*b*) inspection, and (*c*) microscopical examination. In the early months it may be difficult to make out the condition of the pregnant uterus on account of the presence of the growth and the bleeding to which bimanual examination may give rise. On the other hand, the uterus is not rarely distended by pus (pyometra) in cases of cancer of the cervix, and it may then closely simulate a pregnant uterus, especially if menstruation has stopped. This will rarely occur apart from pregnancy until the age of the menopause (47), and pregnancy at this age is so exceedingly rare that only one case was recorded in Sarwey's collection.

On vaginal examination either a growth or an ulcer will be felt, both differing markedly from the normal cervix by being comparatively hard and brittle, breaking down under the finger, and bleeding on pressure with the finger or the point of a sound. In later stages the uterus may be fixed by inflammation or growth in the cellular tissue; this is most easily made out by rectal examination.

On inspection through a speculum—a large Fergusson speculum, with the patient in the lithotomy position, is best for this purpose—an irregular growth with nodular or club-like processes, with or without ulceration, may be found. The colour of the growth is livid red, often sloughy on the surface, and may contrast with the purple colour of the vaginal cervix. The surface of the growth should be dried with absorbent cotton-wool, the overhanging edge noted, and the bleeding and breaking down on pressure. If ulceration be present the only conditions likely to be mistaken for it—viz., tubercle and syphilis—are rare.

In some cases only a hard, smooth enlargement of the cervix is met with; there is neither a projecting irregular breaking-down growth nor ulceration, the growth being in the wall of the uterus. In these cases the finger is easily passed into the cervical canal and recognises the bleeding growth. A piece of this should be removed for microscopical examination in all cases. This is rendered especially necessary as the syphilitic and tuberculous affections cannot be distinguished by clinical methods, but are easily recognised under the microscope.

In ordinary cases the diagnosis of the growth is quite easy; the marked contrast of the brittle, bleeding growth with the soft tissues of the cervix of pregnancy leaves no doubt. There are, however, certain diseases of the cervix which closely resemble cancer and certain cases of cancer which lack the usual signs.

CONDITIONS RESEMBLING EARLY CANCER OF THE CERVIX.

Hypertrophied papillary or nodular erosions, hypertrophied and inflamed glandular erosions, and papillomata (simple and diffuse) may closely simulate cancer.

By hypertrophied papillary or nodular erosion I mean a growth with club-like processes or lobules made up of thick connective tissue centres, often containing dilated glands, covered with a single layer of columnar or cubical epithelium. I have not met with this form during pregnancy, but the diagnosis would be difficult without microscopical examination. This form, however, is not friable.

By hypertrophied and inflamed glandular erosion I mean a granular condition similar to the ordinary glandular erosion, but much larger and more vascular; it sometimes measures as much as 1½ in. across, and can be broken into with the point of a sound and bleeds readily on examination. It dose not break down to the extent that cancer does, and the growth does not project from the surface, but in some cases it is necessary to excise a piece in order to exclude cancer. I have not met with this condition in pregnancy, but in the unimpregnated uterus have several times mistaken it for cancer until the microscope showed its nature.

Papillary growths are met with in several forms. The pedunculated papillomata of gonorrhœa are occasionally found on the cervix, but rarely, I think, without being present on the vulva or vagina. This scattered distribution is an aid in diagnosis. Broad flat papillomata with a finely granular surface may be met with both in gonorrhœa and soft sores, and, I believe, as a result of masturbation. They bleed and break down under the finger, are generally softer and more friable than cancerous growths, and can often be pinched off the surface of the cervix with a forceps, leaving a raw red surface, fairly smooth and bleeding freely. Under the microscope a central vascular stem supported by connective tissue is seen surrounded by a mass of large epithelial cells, often œdematous or vacuolated.

Also there occur occasionally more solid isolated polypoid or sessile nodules in the cervical canal and at the external os which consist of stroma of the cervix covered by many layers of squamous epithelial cells (metaplasia of cervical columnar epithelium). In the substance of these growths gland spaces may be cut across of which the epithelium has also undergone metaplasia, so that the spaces are filled with squamous epithelium. If these growths be cut without the subjacent and adjacent tissue, the appearance is not distinguishable from squamous-cell carcinoma, although a deeper section shows no such invasion of the deeper tissue of the organ as occurs in true carcinoma. In excising a portion of the cervix for microscopical examination a wedge-shaped piece should be removed, including the edge of the suspected growth, and after the wedge has been excised care should be taken that the microscopic sections are cut vertically to the free surface and not parallel to one side of the wedge.

Lastly, I would like to direct attention to the unusual features of Case 9 which led to an erroneous diagnosis. The peculiar features were (1) the smooth surface of the growth pitted by several holes from which a pus-like fluid escaped in considerable quantity; (2) the growth did not bleed at all, although it was dressed almost daily for nearly two months; (3) the growth did not break down under moderate pressure; (4) it did not, apparently, increase at all during two months' observation, and in the puerperium at first diminished in size. I do not remember to have seen another case of cancer of the cervix in which these "pus" holes were present, although I have seen several in cancer of the vulva. In this case it is to be regretted that a piece was not excised; this would at once have shown that the growth was a columnar-cell carcinoma and that the "pus" was the liquefied central epithelial cores.

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[4] Ueber Komplikation der Gravidität mit Uteruscarcinom, Inaug. Dis., Berlin, 1905, p. 35.

Importance of Clinical Examination.

Although the microscope is of the highest value and is indispensable for the diagnosis of certain cases, clinical examination is also of great importance. For want of this I have known a distinguished pathologist decide, as the result of the examination of a microscopical section, that only normal cervical glands were present when clinical examination showed a deeply-invading cancer. In this case the rare form of the cancer—"carcinoma adenomatodes"—in which the glands are lined with a single layer of columnar epithelium would have led to a serious error if reliance had been placed on the microscopic examination alone and the clinical signs had been neglected.

A SURVEY OF OTHER PUBLISHED RECORDS.

Tables of cases of cancer of the cervix in "Advanced Pregnancy"[5] treated by vaginal or combined abdominal and vaginal operation from the papers of Glockner (10 cases), and Olshausen and Kaussmann (8 cases) have been published by the lecturer in the Obstet. Soc. Trans., Vol. XLVI., pp. 369, 371. Of these 18 cases 12 were operable, and gave immediately two maternal and four fœtal deaths. One mother treated by vaginal hysterectomy 17 days after labour survived for five years—Olshausen's case ($5\frac{3}{4}$ years). The final result to the children was not given, but the immediate mortality was five.

Five cases were "inoperable" and were treated by Cæsarean section or Cæsarean hysterectomy with intra-peritoneal or (in 1 case) extra-peritoneal stump. Of the 5 mothers 4 died, and the fifth survived only five months. Of the 18 cases, operable and inoperable, 1 was cured; the total immediate mortality (in all cases operable and inoperable) was 6, or one-third, the operation mortality 3, or one-sixth.

E. Aulhorn[6] has published a series of 10 cases from Zweifel's clinic showing the results of abdominal hysterectomy for cancer complicating pregnancy. Three of the patients were in the last month of pregnancy. One died of pulmonary embolism on the ninth day after the operation; the second recurred within six months; the third was free from recurrence after "a good five years" (no dates or details of the cases are given)—i.e., of the cases in advanced pregnancy a third were "cured." Seven of the patients were in the early stages of pregnancy (up to the eighth lunar month); of these, two recurred (after six months and two years) and five remained free from recurrence for from two to three and a quarter years.

E. Wertheim[7] gives a list of six cases from his clinic. One of these was advanced in pregnancy, but was not in labour. The patient remained free from recurrence five years after the operation of extended abdominal hysterectomy (Wertheim). The case was operated on by Micholitsch. Five of the cases were in the early stage of pregnancy (one at the sixth lunar month, one at the fifth month, and in three the embryo only measured 1 to 3 cm.). One of the patients died of embolism on the fourteenth day after operation; in one recurrence took place; the other three patients remained free from recurrence after five years. Thus, four out of six of the cases from Wertheim's clinic remained well after five years. This is, so far as I know, the best result which has ever been obtained in cases of cancer complicating pregnancy.

P. Glarner[8] has published the cases occurring in the clinic of Professor Wyder at Zurich from 1888–1897. There were eight cases of cancer of the cervix, besides one of cancer of the vagina; all the mothers recovered and two children survived. Three of the cases were in advanced pregnancy. All were treated by Cæsarean section, followed by total abdominal hysterectomy, two children surviving. All the cases recurred and died within a few months. Five of the cases were in early pregnancy. Abortion was induced in 2; vaginal hysterectomy was performed in 1 case; abdominal total hysterectomy was begun (apparently not completed) in 1 case, and was completed in the fifth case. Of the 8 cases, 6 were operated on, but none remained free from recurrence.

Trotta[9] gives a case of his own and a list of 26 cases (occurring between the years 1879 and 1905) of cancer complicating pregnancy in the last three months, which had been operated on by Cæsarean section, followed by total abdominal hysterectomy. The maternal mortality was 38 per cent., the fœtal mortality 23 per cent. Of the 15 patients operated on in labour, 8 died and 7 recovered. He compares the operation with vaginal Cæsarean section, followed by vaginal hysterectomy, where the maternal mortality was 17 per cent., the fœtal mortality 44 per cent. The maternal mortality, after the abdominal operation, was thus more than double, while the fœtal mortality was only half that of the vaginal operation.

Sarwey,[10] in 1908, gave a list of 29 cases of the extended Wertheim operation, in all of which the mothers survived; 12 of these were advanced in pregnancy, and 10 of the children delivered by Cæsarean section survived. The final results are not given. This list, of which the first case is Micholitsch's case, already mentioned, has been widely quoted. It certainly looks remarkable, but it must be remembered that it is made up of *published* cases (so far as known to Sarwey) between the years 1900 and 1908; if all the cases which had *occurred* had been published, it would have included Wertheim's case of death from embolism, operated on in 1905, and perhaps others. Only the thoughtless will believe that it represents the mortality of the Wertheim operation, which, in Wertheim's own clinic, had a mortality of 16·6 per cent., and, even when not complicated with the Cæsarean section required in these cases, has a death-rate of about 18 per cent.

Descriptions of Illustrations.

FIG 1. (Case 5.)—Squamous cell carcinoma of cervix. Sketch by author just before operation. (Natural size.) Obstet. Soc. Trans., vol. xlvi.

FIG. 2. (Case 5.)—Squamous cell carcinoma of cervix (low power). Obstet. Soc. Trans., vol. xlvi.

FIG. 3. (Case 6.)—Squamous cell carcinoma of cervix. Sketch by author just before operation. (Natural size.) Obstet. Soc. Trans., vol. xlvi.

FIG. 4. (Case 6.)—Edge of growth (low power). Med. Soc. Trans., vol. xliii.

FIG. 5. (Case 7.)—Squamous cell carcinoma of cervix. Sketch by author of specimen which had been five years in spirit. (Natural size.) Obstet. Soc. Trans., vol. xlvi.

FIG. 6. (Case 7.)—Low power. Med. Soc. Trans., vol. xliii.

R. Vitanza[11] published in 1898 a paper on amputation of the cervix of the cancerous uterus during pregnancy. Of 7 cases seen, in 3 the cancer had spread beyond the cervix; these were delivered in 2 cases by the vagina, and in the third by Cæsarean section. In 4 of the cases the disease was limited to the cervix; these were all treated by high amputation of the cervix. The first case, five months pregnant at the time of the operation, had a natural delivery at the eighth month, and subsequently had a second child, without recurrence of the growth. The second case, also five months pregnant, was delivered at the ninth month. The child lived two days; the mother had peritonitis, but apparently recovered. The third case was operated on without a suspicion of pregnancy; the patient went to the ninth month and bore a living

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[5] In the 8th, 9th, and 10th lunar month.

[6] Archiv für Gyn., vol. xcii., p. 242.

[7] E. Wertheim (Prof. of Dis. of Women, Vienna, died Feb. 15th, 1920), Die erweiterte abdominelle Operation bei Carcinoma Colli Uteri, 1911, p. 196.

[8] Inaug. Diss., Zurich, 1907.

[9] Archiv. di Ost. e Ginecol., April, 1906, p. 192.

[10] Loc. cit.

[11] Archiv. di Ost. e Ginecol., 1898, p. 670; and 1900, p. 257.

FIG. 1 (Case 5).

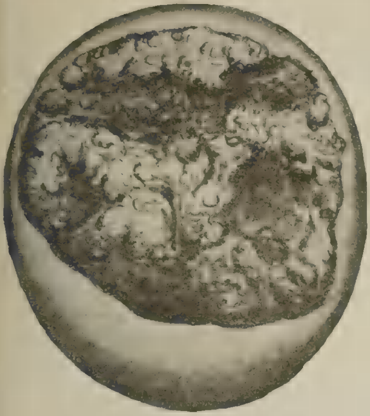


FIG. 2 (Case 5).

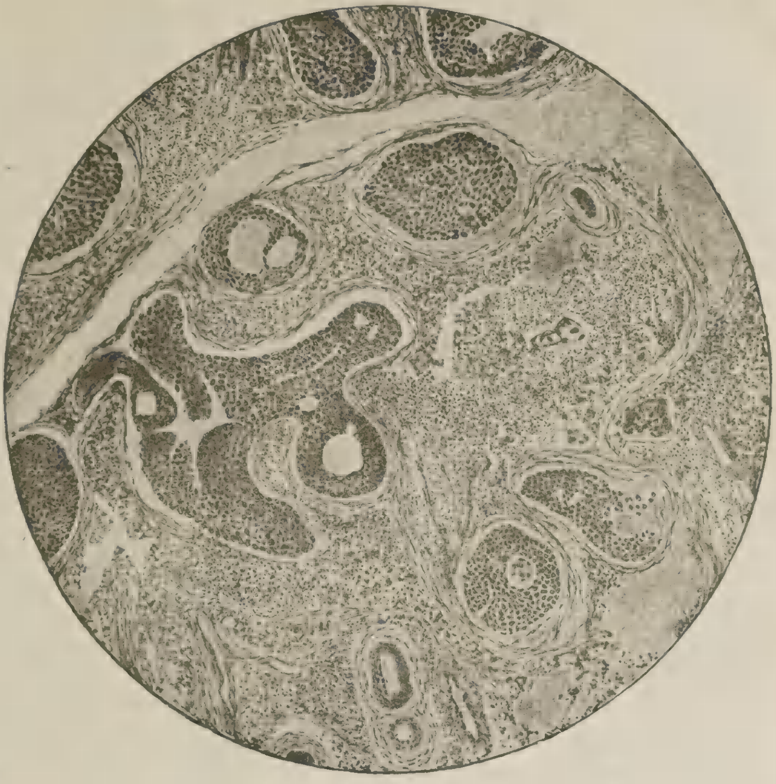


FIG. 3 (Case 6).

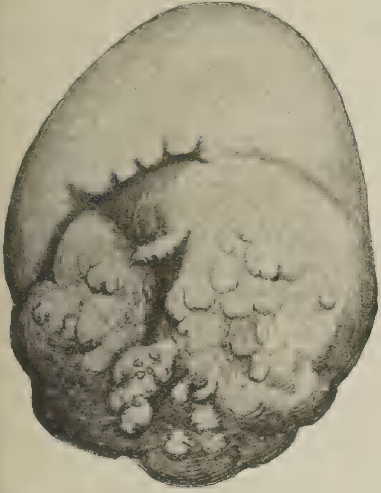


FIG. 4 (Case 6).

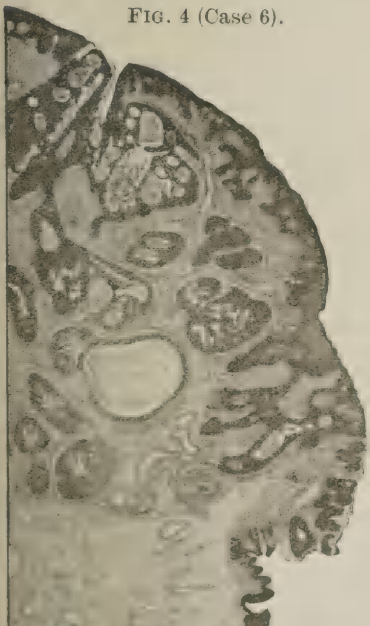


FIG. 5 (Case 7).

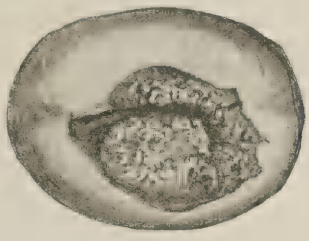
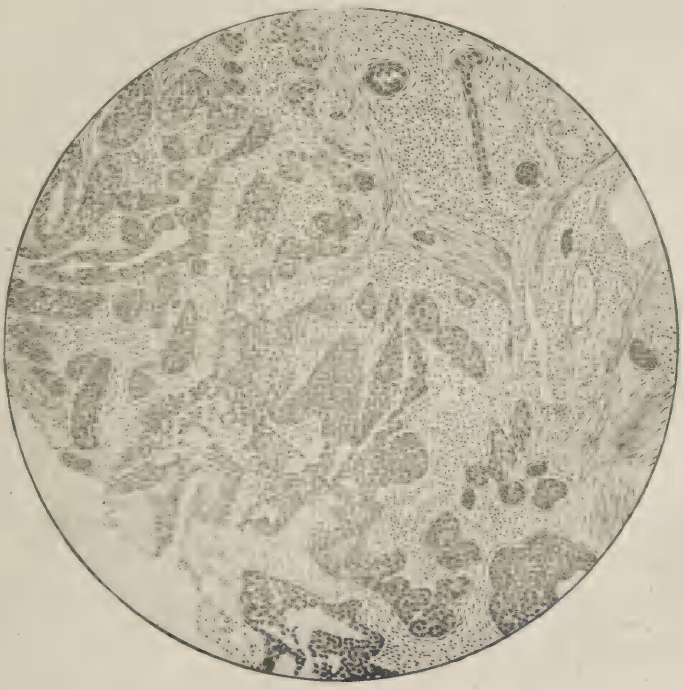


FIG. 6 (Case 7).



child; the mother was well six months later. The fourth case was six months pregnant. Labour occurred at 7½ months; the child lived and the puerperium was normal. There was no recurrence three months later.

Two years later, in the same journal, Vitanza published a paper on 33 cases of high amputation for cancer. Of these 15 were early cases; only 2 recurred, and 9 remained free from recurrence for 3 to 12 years, and in 6 of these pregnancy occurred from six months to three years after the operation. The Pacquelin cautery was used in all cases after the amputation. The preservation of the fœtus, and the possibility of pregnancy following high amputation, as shown by Vitanza's cases and one of mine, are valuable advantages of high amputation which should not be overlooked in considering the question of treatment.

TREATMENT.

The treatment of cancer of the cervix complicating pregnancy varies according as the case is "operable" or "inoperable" and the child is viable or not. The question of operability is usually decided by the absence of fixation of the uterus and of thickening in the parametric tissue, though operation, both vaginal and abdominal, permits the removal of the uterus in certain cases where these conditions are found. The age of viability of the child may be taken for practical purposes as in the last three lunar or two calendar months of pregnancy, in this paper called "advanced pregnancy," pregnancy of shorter duration being called "early pregnancy." In advanced pregnancy the interests of the child and the large size and vascularity of the uterus introduce special problems of treatment and increase the danger of the operation, which is especially great during the course of labour.[12]

The chief modes of operative treatment which have been employed for cancer complicating pregnancy are by high amputation, vaginal hysterectomy, extended vaginal hysterectomy, abdominal hysterectomy, extended abdominal hysterectomy, and combined abdominal and vaginal hysterectomy.

In the course of the last ten years great advance has been made in the treatment of cancer of the cervix by radium, mesothorium, and X rays, and for the last five years in several of the chief clinics of Europe, operation has been almost entirely abandoned in favour of radiation treatment. This method of treatment would seem to entail some risk to the fœtus, and I am not aware that it has been employed during the course of pregnancy. The patients are on the average younger, and therefore presumably stronger than non-pregnant patients, but the disease is apt to be more malignant in the young. The glands are, however, comparatively rarely affected.[13]

Treatment during Early Pregnancy.

(*a*) "Operable" cases should be operated on at once. The opinion once held that cancer complicating pregnancy was inevitably fatal can no longer be maintained. The best results have been obtained by the extended abdominal hysterectomy, Wertheim's results having been unequalled by any other method. In view of the fact that the glands are rarely affected, vaginal hysterectomy (preferably performed with the cautery) may be employed in feeble or fat patients, as it has a much lower mortality than the abdominal operation, and amputation of the cervix may be performed in early cases of squamous carcinoma, in which there is a desire to preserve the life of the child and the fertility of the mother. During labour or abortion the same operations may be performed if the case is not infected; if infected the whole womb should be removed.

(*b*) "Inoperable" cases. If the case is not accompanied by bleeding or infection the patient should be kept at rest and Porro's operation with the serre-nœud be performed when the pregnancy is advanced. During labour or abortion the case should be treated on general principles with a view of preventing infection, and subsequently treated during the puerperium with the cautery, radium, and X rays.

Treatment during Late Pregnancy.

(*a*) "Operable" cases should be treated by Cæsarean section, followed by extended abdominal hysterectomy. If the patient is in fair condition the operation is indicated equally on the ground of science and humanity. If the patient is feeble or the growth infected it might be preferable to remove the cervix by the cautery and then remove the child by the vagina or by the abdomen, and apply radium after, or without, the removal of the uterus. This procedure would probably be safer to the mother than the performance of abdominal Cæsarean section and the removal of the uterus (or the cervix after amputation) by the vagina, but would involve some increased risk to the child. Vaginal Cæsarean section entails too great a risk of implantation of cancer cells; and no case is recorded in which it has been followed by cure.

During labour the risk to the patient is greatly increased. In the early stages of labour Cæsarean section, followed by the extended abdominal hysterectomy, will usually be the best treatment. But if the labour be advanced and the growth not extensive it may be safer to deliver the patient *per vias naturales*, and afterwards at an early period of the puerperium to treat the diseases by one of the methods mentioned. It is noteworthy that five of the seven advanced cases "cured" were operated on after delivery.

(*b*) "Inoperable" cases should be treated by Porro's operation with the use of the serre-nœud. It has the advantage over the conservative Cæsarean section that it removes the placental site from the risk of infection, and over Cæsarean hysterectomy with intraperitoneal stump that, in case of infection, discharges will readily escape by the side of the wire, which can be placed at any height above the growth, provided the placental site be removed. In the case of a dead or putrid child it would be possible by the Porro method to close the peritoneal wound above and around the uterus before the body of the organ was opened or amputated.

During the puerperium the treatment does not differ essentially from the treatment of cases of cancer in the unimpregnated.

At the present time there is a great tendency abroad to treat these cases with radium, mesothorium, and X rays, a reaction having set in against the extended abdominal hysterectomy on account of its high rate of mortality. The late Dr. Pozzi[14] proposed a restricted vaginal hysterectomy completed by radium therapy in cases of cancer of the uterus. Although such an operation is unsuitable for some cases of cancer during pregnancy, I believe that in the puerperium vaginal hysterectomy, or high amputation performed with the cautery and completed by the application of radium and X rays will be found to give better results than the extensive operations now usually practised.

The three cases of high amputation described in this lecture, which have remained free from recurrence for 25, 22, and 19 years, are instances of the possibility of cure by simple operations, which are free from danger. As far as I know only two other cases of cancer complicating labour in advanced pregnancy are recorded which have remained well for 5 years after operation—viz., Olshausen's (5¾ years), and Von Ott's (8½ years), both operated on by vaginal hysterectomy in the puerperium. Two additional cases in advanced pregnancy have been cured—viz., Micholitch's (5 years) and Aulhorn's (5 years), both operated on by the extended abdominal hysterectomy. The former was in advanced pregnancy but not in labour; no information as to the presence of labour was given in Aulhorn's case. I attribute the result in my cases to the use of the cautery (in two of the cases) and of antiseptic douches, and also to the fact that the operation was performed after delivery when the tissues were involuting.

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[12] See Trotta, loc. cit.

[13] Wertheim, loc. cit.

[14] Revue de Gynécologie, vol. xxiii., p. 209, 1915.

The rarity of cure of cancer complicating labour in advanced pregnancy seems to justify the republication of these cases with a later after-history.

Sarwey, in Veit's "Handbuch der Gynäkologie," while mentioning the title of my former paper in the bibliography, does not allude to the cases in the text. Perhaps the after-history of Case 5 may lead the next German writer on the subject to consider the cases worthy of mention.

VERTIGO.

ESPECIALLY IN RESPECT OF ITS SURGICAL AND MEDICAL TREATMENT.[1]

BY SYDNEY SCOTT, M.S. LOND., F.R.C.S. ENG.,
AURAL SURGEON, WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL, LONDON; SURGEON, DISEASES OF EAR, NOSE, AND THROAT, NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN SQUARE.

VERTIGO, in its various forms and phases, is a common complaint. We can produce vertigo easily in most normal human beings; many can recall their distress, popularly known as "mal de mer," on more occasions than one. By a variety of ways, such as whirling motion followed by sudden change of rate, we can in normal healthy individuals evoke the sensations and manifestations of vertigo. Syringing the ears in a certain way, the application of hot or cold draughts of air to the region of the ear, the passage of electric currents through the head, can all be made to evoke vertigo.

Certain diseases are accompanied by giddiness or dizziness, forced movements and staggering gait, often associated with nausea or vomiting. Sometimes faintness with clammy sweat and collapse are outstanding features of the reaction set up in the vertiginous state. It is therefore no wonder that the medical observer meets with difficulty in finding the true cause of manifestations for which the patient seeks medical aid.

When nausea and vomiting, staggering, and faintness and collapse are prominent features of the attack, one can quite understand that it is the stomach or the heart that the patient and often the physician suspect or regard as the source of the complaint.

Many patients with vertigo are found to have a high blood pressure. In others the blood pressure is considered to be too low. Some are found to have signs of renal disease, such as would indicate certain forms of so-called Bright's disease. When no definite signs of cardiac, gastric, or renal disease can be discovered recurrence of vertigo may be suspected to be due to visual errors, and the more so when visual disturbances associated with giddiness form a prominent complaint. Some error of refraction, if found, is then corrected. Should attacks recur, it would seem instinctive in many to suspect some obscure disease of the brain, and particularly of the cerebellum, as the probable cause of the symptoms.

When no evidence of disorder of the brain can be discovered and the other organs which I have mentioned have been found to be free from definite signs of disease, the case is then diagnosed as one of aural vertigo, or possibly neurasthenia or petit mal.

The Frequency of Aural Vertigo.

The late Sir William Gowers told me personally that in his extensive clinical experience vertigo was associated with some aural disturbance or disease in 99 cases out of every 100 who consulted him with this complaint. So often is the aural complaint completely overshadowed by the more obvious disturbances, such as vomiting, staggering, or faintness, which distress the patient so much more than any auditory defect, that we can quite realise, as medical men, why the patient believes that the true cause of the complaint is elsewhere.

Gastro-enterostomy has been performed upon patients whose gastric complaint was eventually proved to be due to aural vertigo. I have seen patients suffering from disease of the ear, associated with sickness, whose malady had been erroneously diagnosed and treated as that of gastric influenza, gastric ulcer, or even morning sickness of pregnancy. And yet we are all prepared to agree that those who are subject to spontaneous attacks of vertigo when suffering from gross disease of the ear, such as acute or chronic otitis media, should undergo suitable treatment for the ear disease in the first instance.

I have seen the diagnosis of hysteria made in the case of a patient whose vertigo was associated with a polypus in the ear. The distinguished physician was correct in recognising hysterical manifestations, but he was, I believe, advising erroneous treatment when he recommended that the patient should be treated for hysteria instead of for the aural polypus which had set up the vertigo that led to the hysterical state.

It is common knowledge that wax in the ear sometimes causes giddiness until it has been completely removed. I knew a medical man who, having suffered from giddiness, developed mental troubles and neurasthenia, which prevented his practising his profession for many months, until the removal of a very small cake of cerumen which lay in contact with the lower part of his drum, and which had been disregarded by his former adviser.

It is known that suppuration in the ear may be accompanied by spontaneous dizziness and sickness, until the drum has been incised or the mastoid drained.

Vertigo in Labyrinthine Disease.

It is becoming familiar, certainly to aural surgeons, that chronic infection of the temporal bone may lead to erosion of the labyrinth and set up giddiness, which is cured by removal of the disease in the cavity of the middle ear which produced the erosion of its walls.

It has become recognised that it is the duty of the surgeon to distinguish those cases of erosion of the bony labyrinth without infection from those with infection and destruction of the membranous labyrinth, for he must in the latter case be prepared to follow the disease into the labyrinth by opening and efficiently draining the vestibule and semicircular canals, but should generally withhold his hand if the labyrinth responds to stimulation.

Spontaneous vertigo in the course of active middle-ear disease is often, but not always, an imperative and urgent call for surgical intervention. When the vertigo is rapidly followed by signs which indicate that the labyrinth has become completely defunct, we must recognise that we are in face with those manifestations of infective labyrinthitis which generally lead to fatal basal leptomeningitis if nothing be done.

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[1] Being the substance of an address read before the Plymouth Medical Society on Jan. 31st, 1920.

We have been able to trace at the bedside the progress of infection from the ear, through the labyrinth to the basal meninges, and so to the post-mortem table. But its fatal progress can be stayed when passing through the labyrinth if we recognise the significance of the giddiness, character of the nystagmus, forced or erroneous directional movements of the limbs. And we have learnt that the patient may be saved from fatal meningitis by timely drainage of the labyrinth.

So much for the value of vertigo as a sign. Even in meningitis, given the case early, by draining the basal meninges through the labyrinth life may be saved. I refer to the operation for meningitis now known as "translabyrinthine drainage," first described by my colleague, Mr. C. E. West, and myself. But the enthusiastic surgeon must beware lest he open a labyrinth in error, for he may thereby cause the fatal disease which he had hoped to avert. I would recommend such to reconsider the inferences to be drawn when he discovers the true signs of completely defunct labyrinth.

Let us neither fall into the error of treating a possible infective labyrinthitis by procrastination, nor, on the other hand, of treating vertigo impetuously by opening the labyrinth before ascertaining whether the signs justify a diagnosis of destructive labyrinthitis.

Menière's Disease.

I wish now to turn to the class of case which is of more direct interest to the physician. I refer to the group of so-called Menière's disease, which is recognised now to be a symptom-complex. It was one of those extraordinary errors handed down by medical traditions to regard Menière's disease as being due to hæmorrhage into the labyrinth. There is no evidence to support this view to which Menière's writings show that he never laid claim. Almost the only circumstance in which hæmorrhage into the labyrinth occurs, and even then very rarely indeed, is that of leukocythæmia in certain cases.

Menière's one and only post-mortem case of vertigo which revealed any abnormal signs was one which we now claim to be recognised as infective streptococcal labyrinthitis with intensely hypervascular membranous semicircular canals which to naked eye resembles a blood clot, but which really consists of inflamed and engorged tissues infected by long-chained streptococci. The commonest variety of Menière's disease proper is a non-hæmorrhagic and non-infective disturbance of the intact and normally reacting labyrinth. This is so in the vast majority of cases which we meet with in ordinary clinical practice. The symptom-complex is easily recognised. There is generally, but not invariably, a certain defect in hearing with tinnitus. (I have seen many with no defect, also an airman with hyperacute hearing and Eustachian obstruction.[2]) Perhaps the attacks occur more frequently after a common cold in the head or influenza and are ascribed by the patient to his or her being "out of sorts" or "run down." Sometimes the patient is the subject of chronic catarrh of the nose or throat, which may have lasted for years and may be associated with dyspeptic disturbances and perhaps hypochondriasis. The onset of vertiginous seizures is apt to be put down to a "touch of the liver," but its mechanism is unexplained. The patient may actually be under treatment for nasal polypi or some other affection of the accessory sinuses of the nose or throat when troubled with dizziness, staggering, and often nausea, but he rarely regards these maladies as being connected with the cause of the giddiness.

There are, again, other individuals who become subject to vertigo who have not suffered from any of the obvious diseases which I have referred to. Sometimes the physician and neurologist are baffled and, having diagnosed aural vertigo, recommend the patient to consult an aurist. Aurists may find only slight defect of hearing, which he regards as slight nerve deafness, or possibly there seems a tendency to Eustachian catarrh. He is uncertain which is the more important, but it seems of small consequence, and the outlook is regarded as unpromising. The patient returns to the physician with the aurist's report, which perhaps recommends that the patient requires general medical treatment, rest and change, combined with bromides, iodides, perhaps minute doses of quinine, and a little nux vomica to try and avert depression. When these measures fail, or when the vertiginous attack is prolonged or persistent, lasting perhaps several days, it is probably agreed that the question of syphilis must be considered.

In my experience it is indeed most important that, whatever the rank of the patient, the blood should be examined for Wassermann's reaction, and, if the result be doubtful, that the test be repeated in order that adequate treatment may be instituted. But we have no cause to despair even if Wassermann's reaction is assuredly negative.

The state of affairs is extremely unsatisfactory—groping in the dark, searching for the cause and rational cure of a complaint like vertigo, and then falling back on symptomatic treatment. Why is it that we find the cause of the vertigo to be so difficult to reveal? I think it is because we seldom see the patient in the vertiginous state; he has more often recovered than not, and when we do he is so distressed that a thorough examination of the labyrinthine apparatus and vestibular system seems quite impossible. Consequently his symptoms are treated, but not the cause.

Fortunately, through the last 16 years I have had many opportunities of seeing patients when actively vertiginous, both when their symptoms have been due to some gross disease of the ear or brain, and what is still more important, vertiginous when there was no obvious cause discernible, even after a general physical examination. We are all familiar with the latter class.

The vertigo masks other complaints. We have been led to suspect some labyrinthine disturbance; to treat this class of case rationally we must know something more of its precise nature. We see reason for believing it is not cardiac, gastric, renal, not due to local hæmorrhage, nor to local infection (in the obscure class I refer to).

Unilateral Eustachian Inefficiency as a Cause of Vertigo.

The cause, often so subtle to find, and consequently so often overlooked, though admitted as the cause when recognised,[3] is, in my experience, simply unilateral Eustachian inefficiency. It can be proved by looking at each drum while the vertiginous patient attempts to inflate his ears, and noting that one or both fail to expand. The disturbance caused by Eustachian inefficiency is better known to those who are familiar with the effect of passing through sudden changes of atmospheric pressure, as caisson. Divers know to their anguish the pain in ears caused by entering the compression chamber with a cold in the head, which prevents equalisation of pressure on the drums; giddiness, staggering, or vomiting may occur. High-flying airmen who return from atmospheric pressures of 360 mm. Hg on the drums of the ears know the necessity of "clearing" the ears by some procedure, such as "frequent swallowing" or by self-inflation by Valsalva's method. The Eustachian tubes are normally closed, except during the act of swallowing, when they should open for the fraction of a second and close again like the shutter of a camera.

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[2] Proc. Roy. Soc. Med., 1917 (Otol. Sect.), Discussion on Vertigo.

[3] Dr. Peter McBride, Dr. Dundas Grant, Dr. Urban Pritchard, and others report isolated cases, in otological literature.

It is when the tubes fail to open through some inefficiency, such as is produced by congestion or swelling of the mucous membrane due to a cold or catarrh, or when blocked by tenacious mucus or by temporary engorgement of the blood-vessels which supply the pharyngeal end of the tube, that the regulating action fails. A too tight collar in some is known to produce the same result. Why is this mechanism necessary? Because, as I have shown from laboratory experiments, a sudden change of pressure from low to high or high to low in the normal labyrinth on one side, or an asymmetrical change of pressure through the two sides, sets up temporary vertigo with nystagmus and other forced movements which characterise vestibular disturbances.

Treatment.

What, then, is the treatment for the great majority of cases of so-called Menière's disease? Having scientifically excluded other factors, the treatment is directed to the Eustachian tubes. Continue to treat local catarrh and remove its cause, and train the patient to keep his Eustachian tubes free. Carry a Politzer bag, and if you intend to make sure of arresting an attack or series of attacks employ the Eustachian catheter. Do not despise it. Learn its uses accurately and carefully, for cases needing experience and practice are common. Only in cases of special difficulty need the physician despair. Are we, then, to regard bromides, iodides, purgatives, rest, and so on as erroneous measures? Far from it; their value is too well known, but their method of acting is not altogether clear. Is it possible that bromides diminish the reactivity of the individual to labyrinthine disturbances? Perhaps the iodides influence the naso-pharyngeal secretion of mucus and make it more watery, as in other parts of the air-passages. Quinine in minute doses, though possibly sedative to the vestibular system, just as large doses are irritative, may also derive its reputation from its anti-catarrhal action, for we know of certain persons, subject to winter head colds, who appear to derive immunity while taking minute doses of quinine daily without other drugs, or change of habits, residence, or mode of living.

We do not know with certainty how these drugs succeed and why they often fail, but I have attempted to suggest how they may sometimes succeed in restoring Eustachian tube efficiency. If this is a correct interpretation it enables us to understand the subtle relationship between the majority of cases of recurrent vertigo, commonly known as Menière's disease, and Eustachian tube obstruction or inefficiency.

FRACTURES OF TIBIA AND FIBULA: THEIR TREATMENT BY PLATING OPERATIONS.

BY C. FREDERICK STRANGE, M.R.C.S.,
L.R.C.P. LOND.,
MÉDAILLE D'HONNEUR DES ÉPIDEMIES; CAPTAIN, R.A.M.C.;
LATE SURGICAL SPECIALIST, NO. 1 CHINESE GENERAL
HOSPITAL, B.E.F., FRANCE.

DURING the past year I have had a very large number of fractures of the lower limb under my care at No. 1 Chinese General Hospital. This paper deals with 15 consecutive cases in which I have plated the tibia, and in some cases the fibula also. In all cases under consideration both these bones were fractured.

The hard work that fell to the Chinese Labour Corps behind the lines and at the bases and ports where munitions and stores were unloaded had exposed them to accidents of all kinds. No. 1 Chinese General Hospital had 2000 beds, it had the status of the usual general hospital in France, and in its equipment and general management left nothing to be desired save that all the nursing was done by Chinese male dressers. There has never been a matron and staff of nursing sisters. It is true that during the first six months the hospital was in existence we had no X ray department, but this was installed later, thus making the equipment complete. Before its installation all cases needing radiography were taken to Abbeville, ten miles away.

The injury in the cases to be described was severe, as in every case both bones were broken. In the great majority of the cases the fracture of the fibula was at about the same level as the tibia, being the result of direct violence, and in many instances the bones were badly comminuted at the site of fracture.

It is encouraging to note that in each of the 15 cases a perfect result was obtained, despite the absence of a highly trained nursing staff. All were cases of simple fracture due to direct violence, except perhaps one, in which the skin was broken at the level of the break; the wound did not communicate with the fracture, and operation was delayed until this was healed. I do not advocate plating of compound fractures. Experience in our military hospitals during the war is directly against this procedure unless under exceptional conditions.

Importance of Expert Technique.

It is now 25 years since Sir W. Arbuthnot Lane first introduced the then novel and revolutionary treatment of operating on cases of simple fracture and uniting the fragments in position by plates screwed into the bones. Since then many surgeons have adopted the practice in selected cases with varying results. Many have made hopeless failures through bad technique or lack of surgical skill, and consequently this treatment of fractures is frequently derided. But this series shows that, if the principles of aseptic surgery are scrupulously carried out and the operating surgeon understands the technique of bone plating, this method, far from being a failure, becomes an unqualified success.

Undoubtedly a very great deal depends upon the skill of the operating surgeon, and this method of treatment should only be adopted by those who possess that necessary gift. Many brilliant general surgeons, according to Lane, do not advocate the plating of simple fractures because they are not conversant with the technique of bone plating.

Desirability of Early Operation.

Speaking generally, the nearer the time of the operation to the date of the injury the better will be the result. It certainly makes the operation infinitely easier if it is performed before callus has been laid down. If the operation takes place within 14 to 21 days after the injury the ends of the fragments are clean, sharply defined, and when brought together dovetail into each other beautifully, so that the result is perfect, with no shortening of the limb and no stiff joints; in fact, a limb as sound and useful anatomically and functionally as the one unbroken.

For the first six months I was working at a great disadvantage in the absence of X ray installation at the hospital. This fact has, fortunately, not militated against the results of the first cases, which are in every way satisfactory. From personal observation of hundreds of fractures, especially of the tibia and fibula, where both bones are transversely broken and there is great displacement of parts, I have come to the conclusion that no other treatment offers the patient the same hope of getting a perfect limb, functionally and anatomically, as an early plating operation.

Treatment of Two Cases of Long Standing.

I have learned that in plating old-standing cases of fracture of both tibia and fibula, where there is mal-union with shortening of the limb, it is not sufficient to deal with the tibia alone; it is necessary to cut down upon the fibula, expose the fracture, and chisel through the callus *before* putting the plate on the tibia. Case 24330 shows this. In this instance I did not interfere with the fibula. The operation was undertaken four months after the injury, and there was strong callus formation both of tibia and fibula. I should have obtained a better result had I exposed the fibula and chiselled through the callus uniting it in the mal-position in which the radiograph showed it to be. This manœuvre enables more freedom of movement in getting the tibial fragments into perfect apposition, which is the most important consideration.

To get an ideal strong tibia it is necessary to have the lines of force conducting the body-weight in the same vertical plane, and not to have them transmitted to the lower fragment through a deflection, as in mal-union. This ideal can only be obtained by a method, such as a plate, which keeps the broken fragments in perfect apposition.

In only one case (No. 6724) had I to shave the broken ends in order to bring the fragments of the tibula and fibula into apposition. In this case there was excessive shortening (2½ inches) and the operation was not undertaken until eight months after the injury. There was no union of either bone. This was the more remarkable because at the same time the patient had sustained fractures of the right humerus, ulna, and radius. When he came under my care all these fractures were perfectly healed, with full use of his right arm. His left leg was encased in plaster, and on removing this I found the limb shortened as above with no union at all. There were pressure sores on the heel and over the lower end of the upper fragment of the tibia. The radiograph taken showed grave displacement of the bones, the ends being eburnated and rounded with no attempt at callus formation. He had not left his bed for eight months, as he was unable to put his foot to the ground. Operation was postponed till two months after the pressure sores were healed. Eventually the patient only had ½ inch shortening, which is very little considering the great displacement and the long time elapsing between the injury and the operation. When he had been on duty a month he met with another accident to his left leg, falling heavily over a tent rope in the dark. He was readmitted into the hospital under my care with his left knee-joint distended with blood, but the bones and the new union had stood the strain of the fall without giving way. I maintain that no other method of dealing with the fractures would have given such an eminently satisfactory result.

Of the whole series this is the one operated on at the greatest distance of time after the injury—namely, eight months, and yet the end-result has been all that could be desired except for the inevitable shortening.

The Technique.

A few observations about the technique employed, the incision, and the after-treatment may be of some interest.

The incision should be a long one—9 to 12 inches. The best position for the incision is a quarter of an inch external to, and parallel with, the crest of the tibia. This should be performed with one cut, which goes through skin and superficial and deep fascia, exposing the tibialis anticus, which is then gently separated from the tibia with a periosteal elevator. No vessels or nerves are encountered in this incision, and it gives access to as much of the tibia as need be exposed. It is a great mistake to make the incision too short, and there is no need to make it over the superficial surface of the tibia. Another incision over the fibula should be made if that bone has to be exposed. It is essential to have a complete set of Lane's special plating instruments, and another essential, in my opinion, is to have plenty of assistants; three are the minimum, and four are desirable. One is told off to hold the foot and to do nothing else, as very much depends upon this assistant carrying out the minute instructions of the operating surgeon. Lane's large long-handled curved periosteal elevators are now passed round the tibia from either side, completely exposing the fracture; the ends are seized with the special bone-holding forceps and the fracture brought out of the wound. The ends are cleaned and brought into perfect alignment and apposition, and held in place with another special forceps, which allows a plate to be placed over the fracture without again disturbing the forceps holding the fragments in place.

The Site of the Plate.

In every case the plate should be applied to the external surface of the tibia, which is as easily exposed as the antero-internal surface. Here the plate is screwed on and is tucked away between the tibia and the fibula, out of the way of all tendons passing to the foot.

A fairly long plate should be used, 6 or 8 inches long, with room for three screws on either side of the fracture. If the fracture is in close proximity to the ankle-joint shorter plates bent to the curvature of the tibia should be used.

In fractures involving the tibia 1 to 3 inches above the ankle-joint the incision needs to be carried downwards in front of the joint and the tendons of the tibialis anticus and extensor proprius hallucis drawn outwards. These tendons never need be severed. The upper part of the anterior annular ligament may need to be severed, but this is not important; it reunites and its function is not impaired.

Further Details.

The plate and screws should be kept in boiling water until they are wanted, and grasped by means of instruments. The operator should not touch the patient with his hands from the beginning to the completion of the operation. No vessels will need ligaturing; if any are cut they should be clamped with Spencer Wells, which can be removed before the wound is closed by Michel's clips, which are ideal for this purpose. Thus not a single ligature or stitch is used; in fact, frequently even with much exposure of the tibia not a single pair of Spencer Wells is required, as with careful technique not a single blood-vessel needing ligaturing is encountered. Moist eusol dressings are applied to the wound and the limb is firmly bound over cotton-wool. I prefer to keep the limb slung in a Thomas splint with a moderate amount of extension until the clips are removed 11 to 14 days after the operation. Six weeks later it should be difficult to find the incision. Passive movements of the knee- and ankle-joints are commenced when the clips are removed. After a month the limb should be put on to a back splint with a foot-piece.

Massage, if necessary at all, should not be commenced till two months after the operation. Usually it is not required at all. After three months, but not before, the patient may be allowed to walk, putting weight upon the limb. By then the callus uniting the bone is sufficiently strong to stand the weight of the body, although it may not reveal its presence in a radiogram. After four months the fractured limb should be as strong and useful as the good one, with no disability whatever, no shortening, and not a vestige of stiffness in any joint.

This sounds very ideal, but in all the cases described it was the result obtained, the only case of shortening being the one where the ends of the bones, eight months after the injury, had to be pared to give them approximating surfaces. If the patient is anxious to get about after a month he may be allowed up in a calliper splint, but it is better not to permit even this until two months after the operation.

In my opinion the reason that screws work loose is that weight is allowed to be put upon them before there is a sufficiently strong callus laid down; this is not strong under three months. The function of the plate and screws is not to bear or even transmit weight; it is simply a scaffolding to hold the fragments in apposition and correct alignment until Nature has supplied the new bone, which it always does in my experience. I have never seen a loose screw in any of my cases of tibial platings.

Details of Cases.[1]

CASE 986.—Admitted 7/2/18 with fracture of left tibia and fibula. Large piece of wood fell on the left leg causing transverse fracture of the bones just above the ankle-joint. Brought the same day from Dieppe. Radiograph showed great displacement of the lower fragments inwards.

18/2/18: *Operation.*—Tibia exposed by longitudinal incision along the outer side of the tibial crest. The fragments thoroughly exposed and isolated and easily brought into excellent apposition. The plate was first bent to accommodate itself to the outward slope of the tibia and screwed on, maintaining the broken fragments in apposition. Wound closed with Michel's clips. No vessels were cut or ligatured during the operation. Limb put up on back splint with foot-piece and side pieces.

1/3/18: Michel's clips removed; the wound perfectly healed; movements of knee- and ankle-joints carried out. 4/3/18: Daily passive movements of joints. 16/3/18: Radiographed; shows fragments in perfect apposition and the fibula also brought into good alignment. 17/3/18: Splints removed. 17/4/18: Getting about with aid of crutches. 18/5/18: Walking quite normally with no assistance from crutches or sticks, no discomfort of any kind complained of. 18/6/18: Radiographed; shows excellent callus formation with bone in perfect position. The fibula now is united with no displacement of parts. 22/8/18: Radiographed; it is now not possible to see where the break occurred, the fibula has come into perfect alignment and a new medullary cavity is in process of formation. 27/8/18: Discharged to duty. This has resulted in an eminently satisfactory way.

CASE 24330.—Admitted 29/11/17 with fracture of right tibia and fibula 4 in. above ankle-joint, having been knocked down by a motor lorry. The M.O. in charge of ward put him up in a box splint. Massage commenced 8/12/17; fragments apparently in good position. 17/12/17: Slight œdema of leg; no sign of callus formation. 10/1/18: Considerable œdema and tenderness over site of fracture. 14/1/18: Put up in a Thomas splint with extension. 25/1/18: Thomas splint removed. Patient cannot elevate leg from the bed, but can move his toes and flex his ankle. (At this stage patient came under my care.) 9/2/18: Radiographed; shows fragments in very bad position, greatly displaced laterally and inwards.

20/2/18: *Operation.*—Longitudinal incision 9 in. long on outer side of crest of tibia; bone exposed; callus broken down and chiselled away. Fragments brought into good apposition. Plate screwed in on outer surface of tibia, wound closed with Michel's clips; limb put up in a Thomas splint.

5/3/18: Michel's clips removed; wound completely healed; passive movements of knee- and ankle-joints commenced. 17/3/18: Thomas splint removed. 25/3/18: No shortening of leg; ankle-joint normal. 3/4/18: Radiographed; shows fragments of tibia in fairly good position, but it also shows that if the fracture of the fibula had been broken down at the operation the result would have been much better. The fibula being firm made it difficult to get the tibial fragments into the best position. 17/4/18: Getting up on crutches. 25/6/18: Radiographed; shows excellent callus formation. 5/8/18: Discharged to duty. Limb strong and free from pain or any discomfort.

CASE 59790.—Whilst at work accidentally knocked down, fracturing the left tibia and fibula. Admitted two months later with ¾ in. shortening of leg. 8/3/18: Radiographed; shows oblique fracture of the tibia at junction of middle and lower thirds, with much displacement of lower fragment outwards and fracture of fibula in upper third.

28/3/18: *Operation.*—Site of fracture in tibia exposed through longitudinal incision to outer side of the crest. The callus was chiselled through, the ends of the bone cleaned and brought and held in good apposition with much difficulty, owing to the shortening of the fibula. The plating was done three months after the accident at the special request of the patient. The callus was well formed, but not very hard. Wound closed with Michel's clips, and limb put up in a Thomas splint with extension.

10/4/18: Michel's clips removed; wound perfectly healed. 28/4/18: Splint removed; movement of joints free. 28/5/18: Getting about on crutches; no shortening of limb. 28/6/18: Allowed to walk without aid. 6/8/18: Radiograph shows firm union, with plate and fragments in excellent position. 22/8/18: Radiographed; shows perfect bony union, and no trace of the break. 27/8/18: Returned to duty, a most satisfactory result.

CASE 21681.—Admitted to hospital 6/3/18 with fracture of left tibia and fibula. Whilst at work on the railway a sleeper accidentally fell on to his left leg, causing the above injury. He had previously to my seeing him been treated in a box splint. Shortening of limb 1 in.

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[1] A series of excellent radiograms accompanied this article and fully bear out the statements in the text.—ED. L.

X rays showed fragments to be in very bad position, with outward displacement of the lower fragments of both tibia and fibula.

9/4/18: *Operation*.—Longitudinal incision 9 in. long to the outer side of the crest of the tibia. Muscles separated from the tibia and the site of the fracture exposed. A fair amount of callus had to be chiselled through. The ends of the fragments were cleaned ready for apposition. Before doing this a separate incision over the fibula was made, the bone and fracture exposed, and the callus uniting the fibula in the malposition chiselled through. It was then quite easy to bring the tibial fragments into apposition. This being done, a plate was screwed on, the tibia being in excellent alignment. No plate was put on the fibula. Wound closed with Michel's clips.

21/4/18: Clips removed; primary union. 6/5/18: No shortening of limb. 18/5/18: Massage; patient allowed up on crutches. 18/6/18: Walking with aid of sticks only. 30/6/18: Walking well and painlessly without aid. 28/7/18: Patient walking normally. He has never complained of any discomfort or disability whatever since the operation. 5/8/18: Returned to duty.

CASE 6724.—Admitted to hospital 13/3/18 with ununited fracture of left tibia and fibula (1/9/17). Whilst attending machinery he was caught in a revolving lathe, whirled round, and then thrown violently to the ground, fracturing left tibia and fibula and the right humerus, radius, and ulna. Taken to a hospital in Boulogne for six months, where the humerus, radius, and ulna united perfectly with excellent functional result. On admission the left leg was in plaster. This being removed, the tibia and fibula were found to be ununited; there was a pressure sore on the heel of the left foot, and another one over the lower end of the upper fragment of the tibia. Operation was deferred until the pressure sores were quite healed.

25/4/18: *Operation*.—A longitudinal incision 9 in. long was made ¼ in. to the outer side of the crest of the tibia, the bone exposed, and the muscles separated. The ends of the fragments were rounded and eburnated. There was a slight amount of callus between the apposing lateral overlapping surfaces of the tibia, but none from the ends, the foot being quite flail. The ends were sawn off. Through a separate incision over the fibula this bone was exposed and found to be in the same state as the tibia, the ends rounded, and no callus thrown out. The ends were sawn off. Then the tibial fragments were brought into perfect apposition and a plate screwed on holding them in good position. A plate was also put on to the fibula. The wounds were closed with Michel's clips and the limb put on a back splint with a foot-piece.

9/5/18: Clips removed; wounds perfectly healed. 16/7/18: Radiographed; shows excellent position of bones. 26/8/18: Walking without pain and without aid. 10/9/18: Plate on fibula removed as it was subcutaneous and in the way of a boot, the upper rubbing against it. 16/10/18: This has been a most satisfactory case. When he came he had no union, had been unable to put his foot to the ground, and was confined to bed. Now he walks perfectly well, with no pain or discomfort. 18/10/18: Discharged to duty.

CASE 45619.—Fracture right tibia and fibula. Admitted to hospital 21/6/18 with history of a piece of wood having fallen out of a lorry on to his leg, causing a transverse fracture of both bones at the junction of the middle and lower thirds. X ray showed transverse comminuted fracture of tibia and fracture of fibula at the same level, lateral displacement, and antero-posterior bending.

8/7/18: *Operation*.—Incision to outside of crest of tibia 9 in. long, exposing the bone. At the site of the fracture there was a large triangular-shaped piece of the tibia broken right away from the bone, from the external and posterior aspects, just where the plate should be fixed. The ends of the tibia were cleaned and brought into good apposition, and a plate applied and screwed on over the triangular broken piece, which was held in position by the plate, but no screws were driven through it. The wound was closed with Michel's clips and the limb put up in a Thomas splint with extension.

15/7/18: Michel's clips removed; wound healed, primary union. 20/7/18: Thomas splint replaced by a short back splint with foot-piece. 20/8/18: Splint removed. 22/8/18: Radiographed. X ray shows parts in excellent position and quite a fair amount of callus formation. The triangular piece of bone, which was completely severed, is in excellent position. 8/10/18: Radiographed; very satisfactory result shown. 30/10/18: Getting about and helping in the ward. 2/11/18: Discharged to duty.

CASE 28572.—Fractured right tibia and fibula. Admitted 31/5/18. While attending a water-cart it tipped up and fell on patient's leg, causing a fracture of the right tibia and fibula. X ray. Radiograph shows transverse fracture of tibia and fibula at the same level, at the junction of the middle and lower thirds, with inward displacement of the lower fragments. There is also some comminution of both bones.

8/7/18: *Operation*.—The tibia was exposed through a longitudinal incision external to the crest and the fracture exposed. Some soft callus was chiselled away and the ends brought into excellent apposition. Plate applied to external surface and screwed on. Wound closed with Michel's clips and limb put up in a Thomas splint with extension. With a view of obtaining a good result without operation this fracture was treated in a Thomas splint with extension for a month. Extension was continuous and adjusted every day, yet at the end of a month there was still shortening and malposition of fragments.

17/7/18: Clips removed; wound perfectly healed; kept on splint. 22/7/18: Thomas splint removed, back splint and foot-piece applied. 23/7/18: Radiographed; parts shown to be in excellent position. 5/9/18: Right knee-joint found swollen, not painful. Aspirated, 2 ounces clear straw-coloured fluid removed. 8/9/18: Stereoscopic radiograph shows tibia in excellent position. 16/11/18: Radiographed; as above. Measurements both legs equal. 28/11/18: Discharged to duty.

CASE 4807.—Admitted 28/6/18 with transverse fracture of left tibia and fibula only 1½ in. above the ankle-joint, caused by foot being run over by a light railway truck.

10/7/18: *Operation* 12 days after the accident; very much displacement of parts. Small plates were put on both tibia and fibula. The plate applied to the tibia had to be bent so as to conform to the curvature of the bone. Both tibia and fibula were brought into perfect apposition. Wound closed with Michel's clips. Limb put up in a Thomas splint with weight extension.

18/7/18: Michel's clips removed; wounds perfectly healed. 26/7/18: Thomas changed for back splint with foot-piece. Movements of joints carried out. 19/8/18: Back splint removed; knee- and ankle-joints freely mobile. 2/10/18: Allowed to get up and walk with aid of crutches. 21/1/19: Discharged to duty. Limb as sound as the one unbroken, no shortening and perfect union of fragments, no break being visible in the X ray.

CASE 130213.—Admitted 28/6/18 with transverse comminuted fracture of the right tibia and fibula, injury five days previously, lower fragments displaced outwards.

12/7/18: *Operation* 19 days after the injury. The ends of the broken tibial fragments were cleaned of intervening tissues and brought into good apposition. On the postero-external aspect a triangular piece of the tibia was broken right off, being quite separated from the bone. This was replaced in position and the plate applied over it, though no screws were driven into it. The fibula was exposed through another incision, and a small amount of callus already formed chiselled away and the ends brought into perfect apposition and a plate applied. The wounds were closed with Michel's clips and the limb put up in a Thomas splint with extension.

20/7/18: Michel's clips removed and wounds perfectly healed. 22/7/18: Thomas splint substituted for back splint with foot-piece. 19/8/18: Splint removed; movement of knee- and ankle-joints perfect. 2/10/18: Allowed up and to walk with aid of crutches. 25/11/18: Getting about without stick or crutches. 21/1/19: Discharged to duty. The limb is the same length as the other; no pain, no disability of any sort, and the point of union of the bones has disappeared, and the medullary cavities are normal.

CASE 37651.—Admitted 19/8/18 with transverse comminuted fracture of the right tibia and fibula 2 in. above the malleoli, the lower fragments being displaced inwards.

28/8/18: *Operation* ten days after the injury. Longitudinal incision along outer border of crest of tibia. Fragments exposed and brought into perfect apposition. Plate screwed on to outer surface of tibia, holding the fragments in excellent position. Wound closed with Michel's clips. Limb put up in a Thomas splint with weight extension.

7/9/18: Michel's clips removed; wound perfectly healed; limb put up on back splint with foot-piece; movement of joints carried out. 28/11/18: Allowed up on crutches. 28/12/18: Up and about, no stick or crutches being used. 21/1/19: Discharged to duty. Limb as sound and useful as uninjured one; no shortening, no lameness, no disability of any kind. An excellent result.

CASE 92666.—Fracture right tibia and fibula. Admitted to hospital 12/8/18 with history of being struck by iron crane while working on the wharf at Dieppe. Radiograph showed very nasty comminuted fracture of both tibia and fibula, with much displacement of fragments, the lower fragments displaced outwards.

10/9/18: *Operation.*—Longitudinal incision to outer side of the crest; fracture exposed. Great difficulty was encountered in getting the fragments into good position on account of the amount of comminution of the posterior aspect of the bone at the site of the fracture. Plates applied and screwed on, holding the fragments in a very good position. Wound closed with Michel's clips. Limb put on back splint with a foot-piece. The skin was broken near the wound, but this was avoided.

22/9/18: Michel's clips removed; wound perfectly healed; movement of joints carried out and limb replaced on splint. 30/11/18: Commencing to get up on crutches. 5/12/18: Radiographed; tibia and fibula in perfect alignment, with excellent callus formation; medullary cavity in fibula commencing to be formed. 13/1/19: Radiographed; excellent result. The site of fracture can still be seen in the lateral view only. 10/2/19: Radiographed; excellent result. 12/2/19: Discharged to convalescent ward.

TOPOGRAPHIC PERCUSSION AND VISCERAL TONICITY.

BY ALBERT ABRAMS, A.M., M.D., LL.D.,
LATE PROFESSOR OF MEDICINE, COOPER MEDICAL COLLEGE (STANFORD UNIVERSITY), SAN FRANCISCO, CALIFORNIA.

IN a recent communication,[1] "L'orientation des animaux et les influences magnétiques," by Jules Regnault, before the Society of Comparative Pathology, the following observation is made:—

> "My studies on orientation have been controlled by the observation of Abrams. To obtain the best results subjects must stand on a grounded plate and colours and intense light avoided. Under these conditions my investigations with colleagues at Vichy, Granville, and Toulon show the following: When the heart area was defined by percussion (patient facing west), then percussed again with the patient facing east, north and south, the area of dullness was notably diminished in the latter positions. The liver border in the right parasternal line diminished 2 to 4 cm., and the upper heart border was lowered from 8 to 10 mm. when the subject was turned from the position 'face to the west' to the position 'face to the north.' We proved Abrams's studies, which show that the visceral reflexes[2] attain their maximum reaction from electronic energy[3] when the subject faces west."

In my book on "New Concepts in Diagnosis and Treatment" (1916) I have expressed myself as follows:—

> "Tone is an essential attribute of all living organisms, and relaxation is its antithesis. The nerve centres are in a condition of tonic excitation, from which impulses pass to the viscera, maintaining them in a state of tonic stimulation. Every living being transforms energy from the universe. The ideal man is a perfect transformer, and 'Life is a continuous adjustment to the environment' (Spencer). The attraction of man by the sun and the mechanical energy imparted to him by the sun, rotation of the earth, atmospheric pressure, and the electric potential at billions of volts all influence the microcosm by the macrocosm—the world machine."

The writer has shown that the magnetic elements influence visceral tonicity, and that the output of energy varies in relation to the posture of the individual, because the intake of energy is similarly influenced. The organs are in a varying state of tonicity, and the tone may be normal (orthotonic), increased (hypertonic), diminished (hypotonic), or absent (atonic). A relaxed organ will yield a smaller area of dullness than an organ which is in a state of tone.

To accurately reproduce the area occupied by an organ it must possess tone, otherwise topographic percussion is unreliable. It is easy for the physician to show that the borders of the heart will vary according to the posture of the patient, on whom percussion is executed. It will be found that the area of the heart, or, for that matter, any viscus will be greater when the patient faces the geographic west than when he faces the other points of the compass. Note that, when the patient stands in the magnetic meridian supreme tonicity is conferred on the viscera. The latter manœuvre is equivalent to organismal induction from cosmical energy. The writer wishes to emphasise an important fact in the technique of sphygmomanometry (like percussion)—viz., the necessity of taking pressure in a definite position.

Any physician can easily prove that variations, however slight, do occur, and they are most manifest when the patient faces the geographic north during the time pressure is taken. Vital phenomena are dynamic, and organismal action is a process, not a structure. All problems dealing with the physiology of man not in accord with the progress made in physical science are doomed to perish.

In my book the electrophysiologic structure of man is shown with the hands and feet as polar termini. With an apparatus constructed by the writer (electroradiometer) it can be definitely shown that the polarity of the hands and feet of a normal male is positive on the right and negative on the left side. This polarity is reversed in the normal female.

Let the reader forget for a moment that the latter observation is correct and try the following. Percuss the area of the heart with the patient facing the geographical west. Instruct the patient to bring both feet in apposition. Note that the area of the heart is diminished. Instruct the patient to approximate his finger-tips in addition to his feet, and note that in many instances the area of cardiac dullness is practically annihilated. Note, furthermore, that the moment the feet of the patient are approximated, there is a momentary inhibition of the pulse. When the feet and hands are approximated the manœuvre may be likened, in the animal machine to a short circuit in a dynamo which discharges the current within the machine, thus causing its deterioration and minimising its energy output.

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[1] Séance, July 8th, 1919; THE LANCET, 1919, ii., 498.
[2] Handbook of the Medical Sciences, vol. vii.
[3] International Clinics, vol. i., 27th series.

Let percussion of the heart teach us another lesson in the physics of the human organism. The reflexes of Abrams demonstrate that the earth is the negative terminal of nature's energy; that when the electrical tensions between the body and earth become equalised the maximum tonicity is conferred on the viscera. Ground each leg of a patient by means of a wire to a faucet or radiator, and note that the intensity of cardiac dullness is greater after than before grounding. Note also the effect when the patient approximates his feet and hands, and note, furthermore, that the maximum intensity of cardiac dullness is attained when the patient is grounded and stands in the magnetic meridian. The writer has utilised therapeutically the latter data for the purpose of minimising the expenditure of nervous energy in neurasthenia.

GENITO-URINARY TUBERCULOSIS

TREATED WITH MASSIVE DOSES OF TUBERCULIN.

BY ROLF CREASY, M.R.C.S., L.R.C.P. LOND.

IT is common experience that, if we except such radical treatment as the removal of kidney or testicle, the amount of good that we can do to cases of tuberculosis of the genito-urinary system is very small, consisting mainly in the prescribing of sedatives to allay the most distressing symptoms. I bring forward the following short series of cases, which are examples only of a longer list of tabulated instances, in order to show that the administration of tuberculin, in accordance with certain methods, may relieve many patients from wretched suffering, constant pain, and the wearying anxiety of frequent micturition night and day. The relief may amount to cure, and in most of the cases with the relief of symptoms there have come great improvement in general health and marked increase of energy. Many cases which I have treated had been under treatment for varying periods in hospitals, and had found no sustained relief; it is in these patients that reviving hope has been of much assistance towards rapid improvement.

In the light of experience gained from these cases I am sure that many sufferers from genito-urinary tuberculosis, if coming under treatment by tuberculin sufficiently early, and in accordance with a suitable technique, are susceptible of great improvement. But the tuberculin test having proved positive the treatment should be commenced forthwith. There should be no delay until tubercle bacilli are found in the urine; although cases of long standing will apparently respond well to the treatment and can be arrested in their otherwise downward course, prognosis is much improved if the cases are taken early in hand and gradually increasing doses of different preparations of tuberculin are administered over a period of six months to a year. A second or third course may be required after intervals of varying length, and there can be no attempt to lay down exactly a routine treatment for any and every patient.

The technique employed in the appended cases was the following. The injections, which were subcutaneous and usually in the upper arm, were given twice weekly, the weight being recorded and the patients taught to take and record their temperatures four times a day. It will thus be seen that the treatment can be carried out at any distance from the physician's house, the dose being prepared after study of the temperature and weight record, which should be sent twice a week to the physician, when the proper procedure can be indicated to the medical man in private charge of the patient. In this way the treatment need not interfere with the patient's daily occupation; where necessary and in old-standing cases two or three courses of injections can be spread over several years, while the word "cure" should be used concerning no patient until he or she has lost all symptoms and no longer reacts to tuberculin. I append short notes of typical cases at different stages of treatment.

Miss I. P., 23. Six years' history. Onset, frequency and pain. T.B. present in urine. Cystoscoped; isolated tubercles L.U.O., retracted, tuberculous nodules. Micturition half-hourly day and night: severe pain, not relieved by micturition. Tuberculin treatment May 13th to Dec. 12th, 1919: P.T.O., P.T., and Old T. to 1·5 c.cm. Gained 1 st. in weight; much less pain. Frequency, $\frac{\text{day, 6 to 8}}{\text{night, 2 to 4.}}$. Is stronger and better in every way.

Mr. F. B., 50. Twenty years' history of frequency and pain on and off. Hæmaturia on some 12 occasions. T.B. present in urine. Micturition, very little control; wears indiarubber bag. Cystoscoped; incrusted cystitis, several hæmorrhagic ulcers, tuberculous nodules in both epididymes. Tuberculin treatment May 10th to Dec. 3rd, 1919. P.T.O., P.T., and Old T. to 1·5 c.cm. Gained 1 st.; discarded rubber bag. Frequency, $\frac{\text{day, 5 to 6}}{\text{night, 0 to 2}}$, no pain, no hæmaturia.

Mr. F. B., cystoscoped February, 1920. Great improvement; examination not painful; ulcers healed. Maintains his good condition as recorded at end of his course of tuberculin two months ago.

Mr. W. T. S., 37. February, 1918. Right testicle removed for tubercle. Ailing since January, 1919, unable to work since March, 1919; weakness and pain in right kidney. May, 1919: Report from St. Mary's Hospital. "Right kidney removed, pulmonary tubercle on right and left upper lobes." August, 1919: Wasting and debility, frequent micturition. Frequency, $\frac{\text{day, 8 to 9}}{\text{night, 3 to 4}}$. Free purulent discharge from pouting sinus in old nephrotomy incision. Cystoscoped; patches of ulceration, numerous, also isolated tubercles; ℥ vi.; distension, urine dirty. Tuberculin treatment August 5th, 1919, to Jan. 20th, 1920: P.T.O. and P.T. to 0·5 c.cm., course proceeding. Gained over 1 st. in weight; discharge almost ceased. Frequency, $\frac{\text{day, 4 to 5}}{\text{night, 1 to 2.}}$. No chest symptoms.

Mrs. G. M., 35. Three years' history of pain and frequency. Onset, hæmaturia. Cystoscoped; many tubercles on trigone, and on lips of both U.O.'s. L.U.O. large, gaping, œdematous. Pain constant, at times very severe, requiring morphia. Patient wasted, sleepless, tired out. Micturition every half hour, night and day. Tuberculin treatment May 1st to Nov. 18th, 1919: P.T.O., P.T., and Old T. to 1 c.cm. Gained 8 lb., different woman, greatly improved, doing own housework. Occasional attacks of frequency and pain. Usually frequency, $\frac{\text{day, 4 to 5}}{\text{night, 1}}$, and pain very slight; no morphia since May.

Mrs. G. M., Feb. 21st, 1920. Nursed her child through six weeks' severe whooping-cough and bronchopneumonia. Some return of pain and frequency; this again subdued by a few further injections of bacillary emulsion.

Mrs. F. S., 42. Seven years' history, occasional hæmaturia pain varying, often severe. Frequency,

$\frac{\text{day, }\frac{1}{2}\text{ hourly}}{\text{night, 8 to 10}}$. Cystoscoped; ulceration of bladder. T.B. found in urine. Patient weak, tired, and unfit for any work. Tuberculin treatment August 1st, 1919: 0·01 c.cm. P.T.O. to Jan. 13th, 1920; 1·3 c.cm. Old T. Marked general improvement in health. Able to do own housework. Much less pain. No hæmaturia. Better nights. Frequency, $\frac{\text{day, 1 to 1}\frac{1}{2}\text{ hours}}{\text{night, 3 to 4}}$.

Mr. F. C., 30. May, 1919: Constant pain both kidneys and groin for a year; not relieved by removal of two small stones from bladder per urethram six months ago. Now complains constant pain and weakness. Frequency, $\frac{\text{day, every 3 hours}}{\text{night, 1 to 2}}$. Cystoscoped; T.B. around R.U.O. No T.B. found in urine. October, 1919: Slight reaction to 0·001 c.cm. Old T. Marked reaction three days later to 0·003 c.cm. Old T. Started treatment Nov. 1st, 1919: P.T.O. 0·0005 c.cm.; now reached 0·7 c.cm. P.T.O. Pain occasional only, and very slight. Frequency, $\frac{\text{day, 3 or 4}}{\text{night, 0}}$. Feels strong and well; able to work.

Mrs. A. W., 33. August, 1919: Tired, sleepless, and worn out. Practically no control over urine, passing every 10 minutes day and night; great pain and smarting; frequent hæmaturia. Five years ago right kidney was removed for tubercle; two sinuses have persisted since, and are now freely discharging. July, 1916: Cystoscopic examination showed ulcerations of bladder wall; T.B. found in urine. Tuberculin treatment from August 1st to end of December, 1919: P.T.O., P.T., and Old T. to 1·3 c.cm. Wonderful improvement, cheerful and energetic and happy; able to do her housework. Frequency, $\frac{\text{day, every 1 to 1}\frac{1}{2}\text{ hours}}{\text{night, every 1 to 1}\frac{1}{2}\text{ hours}}$. Pain occasional only. The sinuses are nearly healed. Very little discharge. March, 1920: Improvement maintained.

Mr. W. W., 38, husband of A. W., above. August, 1919: Pain in left renal region five years, increased by work. Frequency, $\frac{\text{day, every }\frac{1}{2}\text{ hour}}{\text{night, 0–1}}$. Hæmaturia—once, copious, 18 months ago. Pain, chiefly after micturition, nearly constant. Cystoscoped; no stone, no growth; ? tuberculous nodules. X ray, left kidney nil. T.B. found in urine. Tuberculin treatment, August, 1919, to February, 1920: P.T.O., P.T., and Old T. to 1 c.cm. "Feels better than he has done for ages." Frequency, $\frac{\text{day, 3–4}}{\text{night, 0}}$. No pain; able to do full work.

Miss E. F., 35. A negative case. History: Five years' weakness of bladder. Micturition every half hour by day, once or twice only by night; no pain; no hæmaturia. Tested with tuberculin up to 0·08 c.cm. Old T. (twice). No reaction whatever to any test. Clearly no tuberculosis.

Unsuitable cases for the treatment are found to be the following: 1. Those in which any continued fever be present; such fever is caused by mixed infection, and the patient should be kept in bed till the temperature is normal. 2. Albuminuria; no injections should be given. 3. Epilepsy; in such cases it is as well to decline treatment. Pregnancy is no bar to the treatment.

A common lesson to be drawn from these cases is as follows.

(1) Early cystoscopic examination along with testing by tuberculin should be practised in every suspicious case.

(2) Treatment of all cases, however long standing.

(3) Treatment can be carried out at dispensaries, a great economic gain to the community, patients usually being able to continue their work.

(4) The attendance of patients twice a week is essential for the proper progression of doses.

I am aware that medical men have tried the use of tuberculin in these and analogous cases, and have discontinued it, disappointed at the results. To my mind, the failure has been due in some of of these cases to the method in which tuberculin has been administered. I adopted the technique laid down by Dr. Camac Wilkinson, from whose teaching one of the first lessons which emerges is that neither patient nor physician should be afraid of reactions. The high temperature with unpleasant symptoms for 24 hours leads to no harm, and, in point of fact, is an invariable prelude to improvement. I must express my thanks for the assistance I have received from Dr. Camac Wilkinson, who placed his lengthy experience of tuberculin treatment at my disposal, and to Mr. Canny Ryall, through whose courtesy I was able to carry out the treatment of some 40 cases at All Saints Hospital.

Grafton-street, W.

AN EXPERIMENT ON THE

MODE OF TRANSMISSION OF CERTAIN HUMAN INTESTINAL PROTOZOA.

BY J. C. WATT, *M.C.*, M.B., CH.B. GLASG.,
CAPTAIN, WEST AFRICAN MEDICAL STAFF, ATTACHED KING'S AFRICAN RIFLES.

THE conclusions of Wenyon and O'Connor as a result of that part of their work in Egypt[1] which dealt with the viability under various conditions of cysts of human intestinal protozoa, and of their mode of transmission from one host to another, appeared to negative my own, particularly on the mode of transmission of amœbic dysentery. For reasons subsequently to be stated my experience in West and East Africa led me to believe that amœbic infection was likely to be wind borne, and to lie in the dust of the countries where the disease is prevalent.

Wenyon and O'Connor, however, apparently showed that cysts of various intestinal protozoa, including that of *Entamœba histolytica*, are killed by drying or insolation; they showed that such cysts are frequently ingested by house-flies, and deposited with the fæces of the latter wherever these may alight and feed; the main conclusion being that the ultimate channels of transmission of amœbic dysentery are moist and wet food and water.

The test used by these observers to ascertain the viability of various cysts after drying was the eosin test. Cysts which stained with dilute eosin were considered to be dead, those refusing the stain to be alive. The reliability of this test seemed to me doubtful. It may be true that "a living cell will not stain with dilute eosin, whereas a dead cell will stain at once"; but does a cyst, which is not merely a cell, but also a cell provided with a resistant, although no doubt permeable outer layer or covering, behave in the same way in this respect as will an unprotected tissue cell? It seems possible that a cyst, having lost fluid or having undergone a change in the fluid tension of its contents, but being still viable, may take up a nocuous diffusible substance, such as eosin, on being immersed in a solution of such a substance. Any such interchange, however, of diffusible substances between the interior of a cyst and its surrounding medium must depend on the permeability of the cyst "wall."

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[1] Human Intestinal Protozoa in the Near East, by Temporary Lieutenant-Colonel C. M. Wenyon, B.Sc., M.B., B S., R.A.M.C., and Temporary Captain F. W. O'Connor, M.R.C.S., L.R.C.P., R.A.M.C.

Now, if it were possible to treat a cyst in such a way as to render its "wall" an impermeable membrane, without damage to its living contents, such a cyst would resist staining. In this connexion one of the findings of Wenyon and O'Connor is significant. They found that exposure of histolytica cysts to various chemical solutions caused them to stain with eosin; but that exposure to 1–100 formalin failed to cause the cysts to stain, "even after four hours ...... though they were very much shrunken and distorted, and gave every appearance of having been killed." It is likely that the resistance to staining in this case was produced by the hardening effect of the formalin on the cyst wall, rendering the latter impermeable, and so precluding the stain from access to the cyst contents.

If this is the true explanation of the phenomenon it seems possible that in conditions resulting in the gradual hardening and drying of such cyst walls—for example, insolation and desiccation—the cyst wall may succeed in preventing damage to the contents of the cyst; in other words, that such cysts may be viable, even although they may present the appearance, from wrinkling of the envelope, of having been killed. This seems the more probable when we consider that the cysts of free-living but closely related creatures remain viable under desiccation. As Wenyon and O'Connor point out, "the Thompsons have shown that the free-living *Amœba limax* produces a cyst which will withstand complete and prolonged desiccation under a tropical sun."

Description of Experiments.

In the experiment I have recently carried out the materials used first were :—

1. Fluid fæces—produced after purgation with mag. sulph.—in which the following organisms were seen :—

(*a*) *Tetramitus* (*Chilomastix*) *mesnili*—numerous.

(*b*) *Trichomonas intestinalis*—not so numerous as the former.

(*c*) A small amœba, sluggishly motile, often extruding several blunt pseudopodia at once, showing a granular endoplasm, the pseudopodia being ectoplasmic, of low refractibility; size equal to, or slightly less than, that of an R.B.C. These I thought might be the *E. nana* of Wenyon and O'Connor, but could not prove this by stained specimens.

(*d*) Cysts, presumed to be of the forms mentioned above, namely: 1. Clear, bottle-shaped, with one or two dark specks, which I diagnosed as *T. mesnili.* 2. Larger, clear, bluntly oval cysts, which I considered might be those of *T. intestinalis.* These mostly exhibited flattening of both sides and ends, and were not unlike lamblia cysts, though smaller and without visible internal structure. 3. Small, spherical, in size about equal to an R.B.C., with coarsely speckled contents, no other internal detail being visible.

2. Stephens's scarlet ink.
3. Rain water.
4. Double strength physiological saline solution.
5. 2 per cent. HCl solution.

The fæcal material was first exposed to the sun for one day, dried in the shade for three succeeding days.

Test A.—Small quantities were then emulsified on slides with rain water, and then, after the lapse of 5, 10, 20, or 30 minutes' interval, were mixed with an equal volume of scarlet ink.

Result.—Most cysts of all three types were seen to be stained.

Test B.—Again replacing the rain water by double physiological saline, the same intervals being allowed before mixing with stain.

Result.—Most cysts of all types stained.

Test C.—(1) The same fæcal material (four days old) not having been exposed to the sun, but after drying on a cover-slip for four hours, was then mixed first with (2) double physiological saline, and immediately also with (3) culture of paramœcium, mostly living and moving actively, (4) scarlet ink.

Result.—One typical tetramitus cyst seen entirely unstained, all other material on the slide—including the paramœcia—being deeply stained, except some motile bacteria.

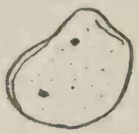
The reason for making these tests was as follows: I considered the staining of dried but possibly still viable cysts might depend either on (1) their loss of fluid, or (2) their relatively high concentration of diffusible substances. Subsequent experiments, on the same lines, with similar materials, gave equivocal results, most of the cysts staining irrespective of what solutions they were treated with before being mixed with the staining solution. That is to say, having once been dried, even short of the point of complete desiccation, they could not be satisfied with an innocuous solution to the exclusion of the nocuous stain.

The same tests were gone through with lamblia cysts, but these all stained readily and completely after short periods of drying.

One result, however, of these tests was that a few cysts of the type described as those of tetramitus, which had been dried for anything between four and ten days, refused to stain, appearing perfectly colourless.

The original specimen of fæces was then placed aside and re-examined between one month and six weeks later, when a scale of dry powder remained in the flask, which had originally contained between 3 and 4 ounces (fl.) of fæcal material. Emulsified and examined under the oil immersion lens numerous cysts were seen on each slide observed. But although those cysts diagnosed as of *T. mesnili* had been fairly easily found in the fresh material, these were now apparently absent, all cysts seen being curiously alike, and spherical or subspherical, except that a few of the larger oval cysts originally present were still to be found. The majority of cysts seen, however, were about equal in size to an R.B.C.; none showed the lobe or knob characteristic of those of tetramitus. Further, all cysts appeared somewhat crenated, and had lost the glassy appearance they had had when fresh.

Some, however, appeared as shown in Figs. 1 and 2. They appeared as if they might have originally possessed a distinct lobe which had been retracted during desiccation into the main part of the cyst. Indeed, a few gave the appearance shown in Figs. 3 and 4. Later, after immersion in 0·2 per cent. HCl, some of these cysts actually seemed to "fill out," as if resuming the form showing a distinct knob or protuberance.

1


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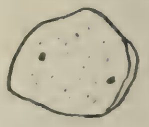

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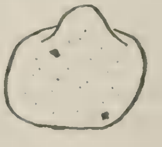

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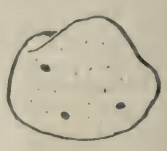

Test D.—A small quantity of this dried material being now emulsified with sterile water and mixed with an equal volume of scarlet ink was examined under the microscope with surprising results. The large majority of the cysts were entirely unstained. In the repeated examination of many such specimens a cyst was occasionally seen which appeared to be slightly tinged with the stain, but not one was found deeply stained. All the others appeared perfectly clear and colourless against the red or pink background of the slide. After four days vaselined specimens showed the cysts to be still unstained.

Test E.—The same emulsion heated on a slide over a spirit lamp and then stained gave the following result: (1) within half an hour, all cysts slightly tinged; (2) after 24 hours, all cysts stained a deep reddish brown.

Test F.—Some of the fæcal material was emulsified in plain sterile water in small flasks and examined after 24 hours. It was then seen that a large majority of all the cysts had developed into motile amœbulæ, which were, to inspection at least, similar to those I had observed in the fresh fæces; but I concluded that these must be free-living amœbæ, which had either been present in the original fresh stool, or were merely a contamination, having been carried into the fæcal material during the process of drying. I was now doubtful as to the survival of any true tetramitus or trichomonas cysts, but proceeded to a feeding test.

Test G.—A chicken, about 1 month old, apparently healthy, was kept in a cage for five days, its droppings examined while newly passed, both unstained and stained with an equal mixture of 5 per cent. iodine in pot. iod. and Stephens's scarlet ink. No protozoal or other organisms were seen, except bacteria. The chick was then made to swallow, morning and evening, about gr. i.–ii. of the dried fæces originally used—that is, material about two months old. Twenty-four hours after the commencement of the test the chick developed diarrhœa, with mucus in the droppings, but no cellular exudate. The following organisms were then found in the mucus: (*a*) Typical motile trichomonas, numerous. (*b*) Tetramitus, less numerous than the former, moving sluggishly. (*c*) One active amœba, about 6–8 μ in diameter, moving sluggishly, with granular endoplasm, and not very sharply defined ectoplasm; refractility comparatively low. On the second day of infection, besides trichomonas, a few typically motile tetramitus were seen. On the third day of infection the chick still showed diarrhœa in the morning, and the droppings contained large numbers—one or two to each field with a 1/12-inch objective—of tetramitus and trichomonas. Feeding with the fæcal material was stopped, the last dose being given at 6 A.M. on the third day after that on which feeding was commenced. On the evening of the same day, diarrhœa had passed off, and only one or two motionless forms of tetramitus and trichomonas were found. Cysts of the types seen in the original fresh specimen appeared in fair numbers. On the fourth day the chick's droppings were again examined. No protozoa were observed, nor their cysts. The chick was then killed, and the contents of all parts of the intestinal canal examined microscopically. No protozoa were found, but in the material taken from the crop were several of the spherical and subspherical cysts as seen in the dried fæces fed to the chick.

Two other experiments were carried out on chicks. In one, dried fæcal material, which had, when fresh, shown a fair number of tetramitus and trichomonas, with appropriate (?) cysts, was used. This material, after about 18 days' drying, with occasional insolation (Lat. 2°–3° N.), but during very rainy weather, showed all cysts stained when treated with scarlet ink. No protozoal infection was induced in the chick. In the second material, sun-dried, containing *E. histolytica* cysts, failed to infect the chicken, even after 5–6 days' trial. In each case blood and mucus, with a heavy cellular exudate, appeared in the droppings of the chick a few hours after the commencement of feeding with the fæcal material, and the chick in both cases was definitely ill. Immediately, however, on cessation of feeding with the fæcal matter the dysenteric condition cleared up, and the chick entirely recovered.

Conclusions.

Since making these experiments I have had no opportunity of making confirmatory tests; but I feel that, in the case of the first chicken test I have described, there can be little doubt that the chicken was infected by the sun-dried material fed to it, for these reasons: (1) The exact correspondence between the organisms observed in the material fed to the chick and those appearing in the droppings of the chick; (2) the correspondence between the duration of feeding with the test material and the duration of infection; (3) the absence of any intestinal protozoal infection from several other chickens examined, at intervals, over a period of three months, some of these chickens feeding in the hospital compound.

It is possible that the "positive" chicken may have ingested house-flies carrying protozoa or their cysts during the period of the test; but this was not observed and the chick was confined in a cage during the test. No cysts were to be found in the water given to the chick; it was fed with rice. It does not seem possible that the chick could have been so heavily and suddenly infected by the ingestion of, at most, one or two flies.

With regard to the dysentery induced in these chickens I conclude that it was probably entirely due to the irritation of poisonous substances in the fæcal material ingested.

Since making the staining tests described I have noticed that living organisms, such as tetramitus and trichomonas, which entirely refuse to be stained by scarlet ink when they are newly passed in the stool, will, while still showing motion, stain slightly with the same material after having been exposed to room temperature (between 70–80° F. in this case) for a few hours, but without drying other than that due to ordinary evaporation of the fluid fæces containing them. It would appear, therefore, that staining of living organisms—cells—such as these is merely proportionate to the degree of loss of vitality.

I have ventured to make the following suggestions from these tests: (1) That the cysts of *Trichomonas intestinalis* and of *Tetramitus mesnili* may remain viable and capable of reproducing active forms after insolation under a tropical sun. (2) That the staining of certain intestinal protozoal cysts is inversely proportionate to the degree of drying and hardening of the cyst wall. (3) That staining cannot be accepted as a test of the viability of these cysts. (4) That the cyst of *Trichomonas intestinalis* is of a flattened oval shape (flattened as to both sides and ends), slightly larger than the cysts of *T. mesnili*, of clear, faintly spotted appearance when fresh, and exhibiting no internal structure when fresh. I regret I have not been able to use the appropriate stains for these cysts.

It seems likely, therefore, that the infections of *T. intestinalis* and *T. mesnili* may be dust-borne, and I think the experiment I have described is sufficient to warrant a re-examination of the more serious question of the mode of transmission of amœbic dysentery. I have referred to my belief that this disease is dust-borne, and it will be admitted that there are many reasons for supposing this to be the truth. Without going into detail, it is generally remarked that amœbic dysentery is most prevalent in the driest and most dusty countries, and that it is most prevalent in the dry seasons of those countries. Further, I suggest that the onset of rains will cut short prevalent amœbic dysentery. I should like to refer to two presumptive instances of this. First, in the campaign in German East Africa the onset of the rainy season coincided exactly with a very great reduction in the numbers of cases of dysentery amongst the white troops with whom I was serving; and of all cases amongst these I found a very large proportion to be amœbic.

Again, in Gallipoli, it was remarked that the onset of the rain in August seemed to put a stop to the dysentery that had been so prevalent amongst the troops there, and although it has since been questioned that much of the dysentery during the Gallipoli campaign was amœbic, it is at least admitted that that peninsula must be regarded as an endemic centre of amœbiasis. No one familiar with hot dusty countries—and especially with campaigning in these countries—can forget the welcome freedom from dust accompanying the onset of the rains. My inference is that the almost absolute freedom from dust in the rainy season suggests that dust has been the medium of infection where dysentery also ceases with the onset of the rains. It may be argued that the rains also reduce the numbers of flies, but a few hours' sunshine is generally sufficient to cause these to reappear and infest food materials as before.

Note.—On the question of the duration of infections of *T. intestinalis* and *T. mesnili*, one case I know to have lasted for over two years, including a period of four months in England. Cyst formation seems to be irregularly periodic in occurrence.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

INTENSIVE IODINE TREATMENT.

BY TOM BIRD, M.A., M.R.C.S.

CONSULTING ANÆSTHETIST TO GUY'S HOSPITAL.

Dr. Louis Bourdreau published in 1914[1] his experience, of some 14 years' duration, of the intensive treatment of tuberculosis by large and continuous doses of the tincture of iodine of the French Codex. The article is remarkable for three things: his great success as to results in tuberculosis, the large doses that can be given by a gradual increase, and the proof of sincerity in that Dr. Bourdreau did not publish his results until some 14 years after he began the treatment. His colleagues only had knowledge of his work, and he showed rare restraint in delaying publication for so long. He suggests the "intensive treatment of iodine" might be useful in other diseases. The article came under my notice through a letter of Dr. William Ewart, of St. George's Hospital, who resorted to the treatment for his own arthritis with such success that "from being unable to go upstairs one at a time, he could manage three at a time." He took 10 gr. in the day of pure iodine, through the medium of the French tincture (or Indian tincture), neither of which contain any iodide of potassium.

In quite a number of arthritic cases, and in three or four cases of chronic gout, and in those cases called "rheumatic gout," I have had a quite remarkable success, especially as to pain and insomnia. In 1917 I met an old friend, Dr. J. H. Ewart, of Eastbourne, and no relation of the above-mentioned Dr. Ewart, who told me he used the treatment, and "was continually having prescriptions returned by the chemists, who were surprised at the doses." Although he is himself susceptible to iodine, he told me that he could take ʒi of the French tincture for a dose. He wrote:—

> "I tried the treatment. tinct. iodine (French), and began with 10 min., and went on to 30 min. three times a day, and the results were really marvellous; my finger-joints decreased in size in a most wonderful manner. I then went wrong, and began taking 60 min. three times a day, and this ended by giving me a diarrhœa I shall not forget. But to refer to other people. I treated at the All Saints' Convalescent Hospital everybody who complained of chronic rheumatism with tinct. iod. (F.). I don't think the three weeks they were there that I got beyond 30 min. ter die; but the results were really splendid."

With regard to tuberculosis, I have only one case to report. He had been at a sanatorium, and was apparently cured; but in a comparatively short time began to fail, and at last came hæmorrhage. I had already advised him to try iodine as a prophylactic. When the hæmorrhage came he was alarmed and began to take iodine. Some two months after I met him by accident and was surprised at his healthy appearance; he was, he said, quite well and had increased 10 lb. in weight. One swallow does not make a summer, but a swallow is a happy omen when it comes.

Some people are susceptible to iodine, as is my friend Dr. Ewart, of Eastbourne; yet he arrived at ʒi. doses. I generally order 1 gr. after meals three times a day the first week, 2 gr. the second week, 3 gr. the third week. For arthritis I seldom give more. Beyond slight catarrh of the nasal mucous membrane, of the possibility of which I warn patients, I hear of no inconvenience, certainly no iodism. If the treatment has been left off it is better to begin again with small doses, as diarrhœa may follow a large dose. When pain and swelling have been relieved my custom is gradually to discontinue the medicine. It is unfortunate that the article in the *Journal de Médecine* is out of print, and apparently unobtainable, as some of the details recorded are interesting and illuminating.

The notable absence of iodism following the use of the French tincture suggests that it might be used instead of iodide of potassium.

Conduit-street, W.

A CASE OF OSTEITIS FIBROSA.

BY NORMAN C. LAKE, M.D. LOND., F.R.C.S. ENG.,

SURGEON, QUEEN'S HOSPITAL FOR CHILDREN, HACKNEY-ROAD, E.;

AND

NORAH H. SCHUSTER, M.B. VICT.,

HOUSE SURGEON, QUEEN'S HOSPITAL FOR CHILDREN.

THE chief point of interest in this case was that, although the X ray photograph so closely resembled that of Mr. E. G. Slesinger's case which appeared in THE LANCET of Nov. 15th, 1919, and very strongly suggested cyst formation, both the operation and subsequent microscopy showed the complete absence of cysts.

The patient, a girl aged 7 years, attended the Queen's Hospital for Children in March, 1916, with a history of a fall three years previously and subsequent limping. There was no shortening of the limb or tenderness, and a bony swelling was felt over the upper end of the femur. The X ray showed a coxa vara with questionable signs of old tuberculous disease or periostitis.

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[1] Journal de Médecine de Bordeaux, January, 1914.

Skiagrams illustrating (1) Mr. Norman Lake's case of Osteitis Fibrosa in a Girl aged 7; and (2) Mr. E. G. Slesinger's case of Osteitis Fibrosa of Upper End of Femur in a Woman aged 25.

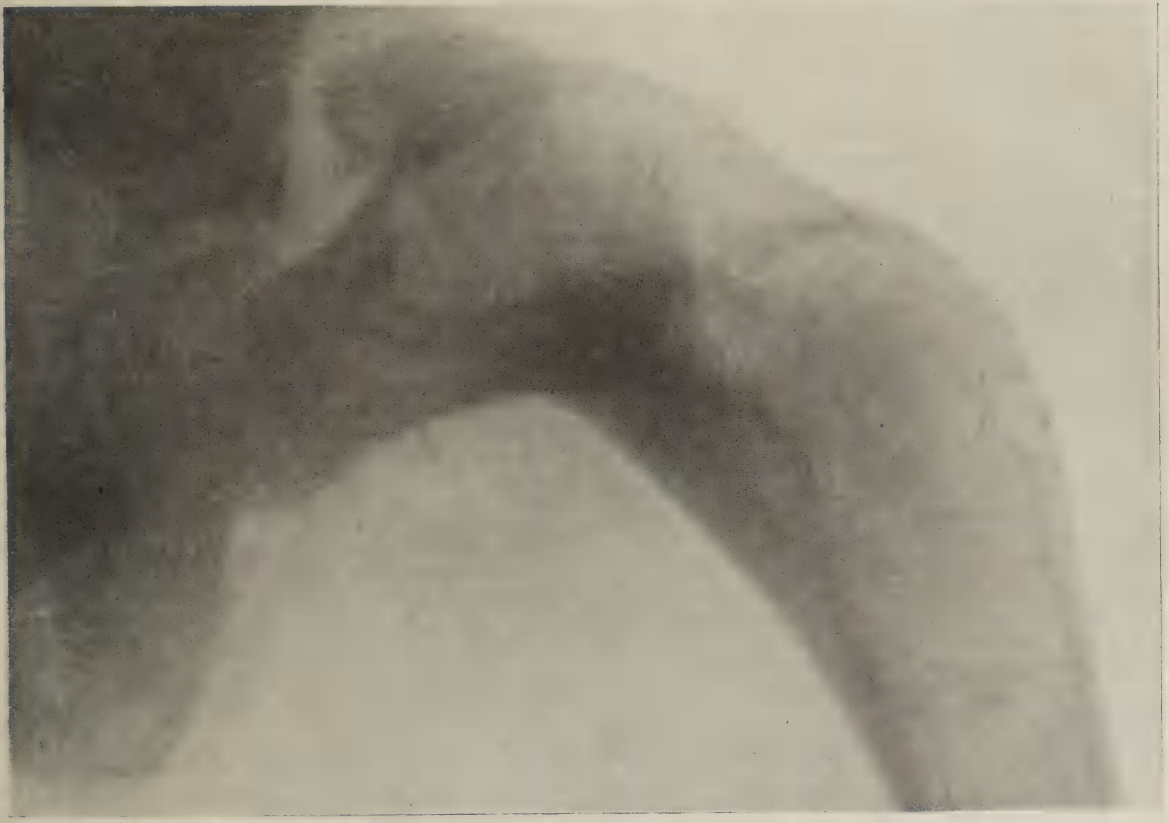

FIG. 1.—Mr. Lake's case.

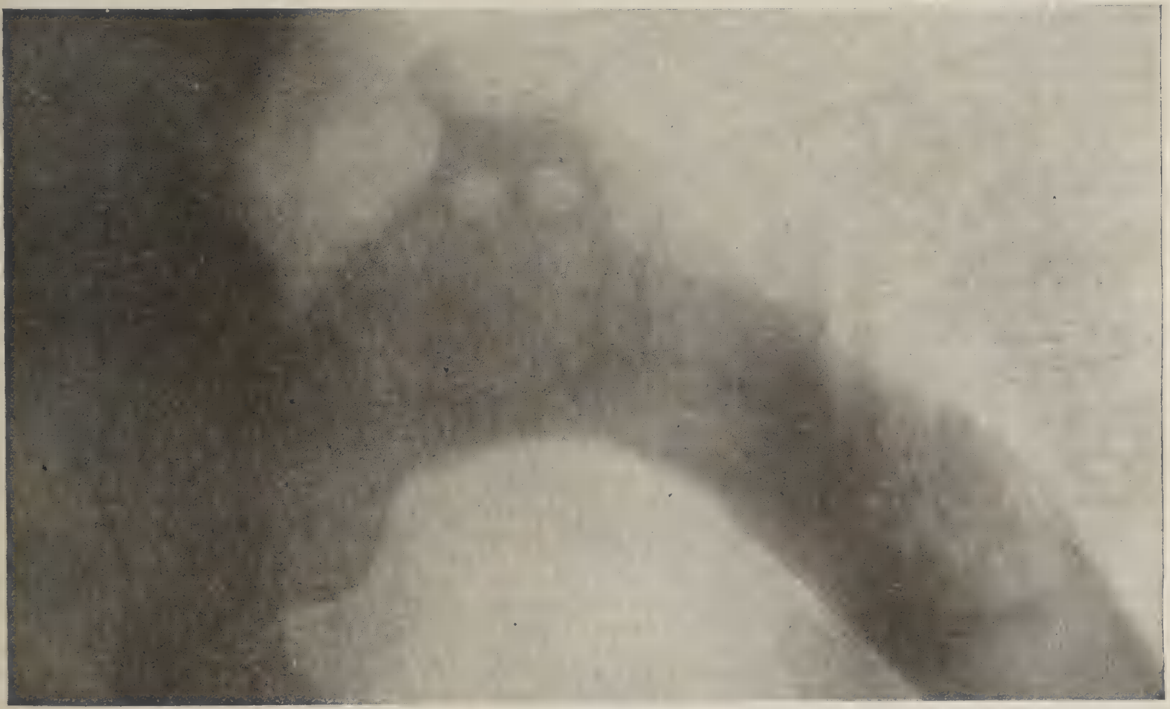

FIG. 2.—Mr. Slesinger's case (reproduced from THE LANCET, Nov. 15th, 1919, p. 868).

The case appears to have been left until a year later, when the X ray report says "an old greenstick fracture at about the level of the lesser trochanter, with curvature of the upper part of the shaft and some lessened obliquity of her neck."

In August, 1917, a sub-trochanteric osteotomy was performed, and at the operation the bone was noted to be thickened antero-posteriorly, and to be of a soft spongy consistency, not easily broken. The limb was immobilised in plaster for four months, and later treated with massage until the patient returned to hospital two years later complaining of pain in the hip. A large bony swelling was present over the outer surface of the femur. The X ray now showed expansion and rarefaction of the upper third of the femur.

One of us (N. C. L.) then removed a piece for examination, which was reported by Dr. W. C. Topley, of Charing Cross Hospital, to consist of "a loose fibrous matrix in which are embedded irregular islets and trabeculæ of imperfectly formed cartilage. There is no cyst formation, calcification is almost absent, but several of the cartilaginous areas show the other changes connected with commencing ossification. No true bone marrow is present." The whole of the diseased spongy tissue was then removed, first cutting through a thin shell of normal bone, and then curetting along the great trochanter into the neck. The periosteum was left, and a thin shaft of normal bone along the inner aspect of the femur. The wound healed without interruption, and subsequent X rays showed growth of callus, but no signs of a return of the tumour.

The history of this case leads to the conclusion that the osteitis fibrosa was secondary to a traumatic coxa vara.

Note.—Since the above was submitted for publication, one of us (N. C. L.) has had a somewhat similar case at Charing Cross Hospital. The patient, a girl of 19, had a spontaneous fracture of the neck of the left femur three weeks previous to admission. A radiogram showed the typical appearance of the bone surrounding the fracture. There was an indurated gland in the groin which on section, however, proved to be chronically inflammatory. Microscopy of the diseased tissue removed showed it to be of exactly the same structure as the first case. With regard to this case the following points are of interest: absence of mechanical trauma, although there is reason to believe from her previous history of pain that she probably had some infective trauma of mild degree; negative history of syphilis and negative Wassermann; absence of Bence Jones's proteid from the urine, and no cyst formation despite the definite indications of the radiogram.

A NOTE ON THE

POSTERIOR NERVE ROOTS OF THE SPINAL CORD:

THEIR STIMULATION IN THE LIVING SUBJECT AND DEMONSTRATION OF DECUSSATION OF THE NERVE FIBRES.

BY E. P. CUMBERBATCH, M.B. OXON., M.R.C.P. LOND.,

MEDICAL OFFICER IN CHARGE OF THE ELECTRICAL DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL, ETC.

WHILST investigating the electrical excitability and conductivity of the nerve trunks of the lower limbs for purpose of diagnosis I have made attempts to stimulate their roots of origin at their exit from the vertebral foramina or in the neural canal. Very strong currents are necessary for this purpose, because the nerve roots lie some distance below the surface. The first attempts were unsuccessful, and no muscle in the lower limbs could be made to contract even when the current had reached the maximum strength which could be tolerated. The faradic and galvanic currents were first used. The galvanic current causes much pain, and the ordinary tetanising faradic current, though less painful, gives a very disagreeable sensation when its strength is much increased. If, however, the primary current is interrupted much less frequently, say once a second, the single shocks caused by the induced current in the secondary coil at break can be tolerated with little or no discomfort. The primary current can then be further increased (or the secondary coil pushed farther over the primary) and a much stronger stimulus can be applied and borne without pain. The coil which I have used for this purpose is the Tripier coil. This is provided with a special see-saw interrupter which can break the primary current any number of times, from 1 to 60 per second. A coil, of English make, known as the "Physio" coil[1] is fitted with a similar interrupter.

If an electrode consisting of a padded metal disc, $\frac{1}{4}$ inch in diameter, is placed on the skin over the lumbar vertebræ, with an indifferent electrode on the abdomen, and the interrupter regulated so as to break the primary current once a second, the secondary coil can be gradually moved over the primary till contractions of the lower limb muscles occur. The region to which the active electrode must be applied lies over the second, third, and fourth lumbar vertebræ, $\frac{1}{2}$ inch from the middle line. The skin must be well moistened, and the electrode pressed as close to the vertebræ as possible.

In the first patient on whom I tried this form of stimulus I noted that the muscles of the lower limb *on the opposite side* contracted. I then applied a similar stimulus to three normal subjects, one male and two female. Similar results were noted. If the current was much increased the muscles of both lower limbs contracted, but those on the opposite side contracted more strongly. When the current was reduced contraction was noted only on the opposite side. In one of the subjects a particularly strong contraction of the opposite quadriceps was noted, even when that of the same side was quiescent. It was well demonstrated when the subject lay face down with the knees flexed to a right angle. Each time the primary current was interrupted the quadriceps on the opposite side gave a sudden tug, and if the ankle was held by the operator the effort of the muscle to extend the knee was felt, and no pull was felt on the same side. The contraction of the opposite quadriceps occurred when the active electrode was placed anywhere on the region mentioned on the second, third, and fourth vertebræ.

In this experiment the contraction is due, in all probability, to stimulation of the *posterior* nerve roots in the cauda equina. If it were due to stimulation of the *anterior* roots, contraction would have occurred on the same side, or more strongly on the same side than on the opposite, and the groups of muscles contracting would have been smaller as the electrode was placed successively on the second, third, and fourth lumbar vertebræ, thereby stimulating successively smaller numbers of nerve roots.

Another observation made during these experiments was that reversal of the direction of the induced current (obtained by reversing the primary current) was followed by little or no contraction on either side.

These experiments appear to demonstrate the decussation of the afferent (sensory) nerve fibres after entering the cord.

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[1] This is made by the Medical Supply Association.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

EARLY MANIFESTATIONS OF SCURVY.

A MEETING of this section was held on Feb. 24th, Dr. A. F. VOELCKER, the President, being in the chair.

Mr. RANSOM PICKARD and Dr. G. W. LLOYD read a paper entitled "Early Manifestations of Scurvy." Two groups of cases were described having the same symptoms, but investigated from a somewhat different standpoint. Another group, bringing the total number of cases to 32, was examined, presenting the same symptoms, but was not referred to in detail. The manner in which the first group was discovered was of interest. In August, 1915, in a divisional rest station in France, there was a large number of cases in which the symptoms complained of were pains in the joints and muscles. In an investigation of these a proportion were found to be anæmic and to have an affection of the gums, either pyorrhœa, bleeding, or loose teeth. It was at first assumed that the pains and anæmia were septic in origin, the cause being the diseased gums. Two patients were then noticed to have each a subcutaneous hæmorrhage. Upon this scurvy was thought to be a possible explanation, and tests were devised to detect night-blindness. By these it was obvious that 9 of the 12 cases in the first group had a moderate degree of night-blindness though none of them had complained or were aware of it. The second group was chosen in a different manner, ten men being picked out who appeared to be the most anæmic. Their hæmoglobin content was then estimated. One suffering from whitlow and another from tertiary syphilis were excluded; neither of these had night-blindness. The remaining eight were then examined as to pain, affections of the gums, and night-blindness; they were found to have some or all of the symptoms. Three cases in the first group had rashes, consisting of a few purpuric spots each around a hair follicle on the front of the thighs and occasionally on the legs. They would fade and one or two fresh spots appear. They were about 2 mm. in diameter. Subcutaneous hæmorrhages consisting of indurations covered by discoloured skin, as in a bruise, occurred on the buttocks, outer part of thighs, and upper arms. In two cases after becoming absorbed they reappeared at the same sites, their position being, no doubt, due to pressure by lying on the ground. Many had the grey necrosis of epithelium of the mucous membrane at the dental edge of the gums characteristic of ulcerative stomatitis, which at about this time appeared in the army. The contention was that anæmia, pains in the joints and muscles, ecchymoses, swollen gums with suppuration, bleeding or loose teeth, and night-blindness formed together the picture of scurvy in its slighter degrees, and were in miniature the same symptoms that exist in the severe cases usually designated "scurvy."

The methods which had been devised for detecting night-blindness were then detailed. A group of controls was taken from among other patients at haphazard, except that they had no pains, gum affections, or anæmia. None of the controls had night-blindness, whilst 16 out of 20 men with the foregoing symptoms were so affected. Charts were constructed to determine whether there was any correlation between the symptoms which could be mathematically expressed, such as percentage of hæmoglobin, the vision by night or candle-light, and the field of vision, or between these and the months of service oversea, but there was no approach to a constant relationship.

Effects of Fresh Food on Scurvy.

In August, 1915, the troops of the division from which the cases were drawn were in the trenches from four to six days at a spell, during which time they had no fresh meat or vegetables. Out of the trenches they had an ample supply of these. Thus they were intermittently short of vitamines, and hence the cases were of slight degree, few in number, and of erratic incidence, only very susceptible individuals being affected. No cases occurred in those above the rank of corporal, presumably because they had a greater variety of food. All but one of the 32 cases occurred in infantry battalions—i.e., in units which had spells of trench duty. In the autumn of 1915 the cases practically ceased, owing, probably, to the fact that the men were able to acquire fruit and vegetables locally. Shortly afterwards fresh meat and vegetables were provided for men in the trenches. In the first half of 1916 a few isolated cases were seen; after that there were none.

The practical bearing of these cases upon civilian work was obvious. Where there was a real lack of food in big cities there was a possibility of finding mild cases of scurvy, and it was claimed that the group of symptoms given would lead to a correct diagnosis. Such cases were particularly likely to occur in women whose work is sedentary and done at home, and whose food is often scanty.

SOME DEFICIENCY DISEASES AND LEPROSY.

Mr. A. STAYT DUTTON read a paper on Some Deficiency Diseases and Leprosy. Having spoken of the connexion between beri-beri and scurvy and deficiency in the diet, he considered leprosy, and referred to Sir Jonathan Hutchinson's investigations. This observer appeared to have been convinced that the food-supply has a considerable effect in its production and noted that it never developed in the United States, with the exception of parts of California, attributing this to the circumstance that it is almost the only country where colonisation took place without an initial stage of considerable hardship, and that a good variety in foods was practically always available. Though leprosy was considered to be due to the *Bacillus lepræ* it was remarkable how closely the nervous symptoms of beri-beri resembled those of lepra anæsthetica. The numbness, anæsthesia, loss of power in the legs, arms, and hands, as well as other symptoms, were very similar, and might in both diseases result in muscular atrophy with foot-drop and wrist-drop. Each was also particularly prevalent in the Far East. Lepra anæsthetica could occur without association with lepra tuberculosa, and be present for a considerable time before the latter eventually made its appearance, and Hutchinson had said that the tuberculous variety never occurred before the anæsthetic kind was in evidence. This appeared to support the food theory. The speaker did not suggest that leprosy was caused by the taking in of bacilli in fish, but there seemed to be the likelihood that when the food-supply mainly consisted of it a deficiency in diet occurred. Salting modified the flavour of the fish, and, according to Liebig, one-third of the nutritive value of meat was lost during the process, and some such change might reasonably be expected in the case of fish. Hutchinson showed that in Iceland and Norway, where leprosy is common, it prevailed more generally on the sea-coast or near lakes and rivers where fish is consumed. It was likely that leprosy might eventually be recognised as partly a deficiency disease, sometimes owing to a predisposition caused by a diet mainly composed of fish, and sometimes to a dietary deficient in various necessary elements. The theory of contagion was not generally accepted, though the case of Father Damien appeared to favour it.

Having considered the possible means of infection by the *Bacillus lepræ*, he said that the discovery of this bacillus had at first led Hutchinson to believe that the ætiology required no further investigation, but later he became aware that this was not the case. It now seemed possible to arrive at conclusions more likely to be accepted—namely, that leprosy is largely predisposed to by defective feeding and by defective personal hygiene, sanitation, housing, and environment, the bacilli then gaining access to the body, with the possible subsequent addition of the whole chain of tuberculous manifestations. The question of prevention seemed to resolve itself into the need of conforming to customs and habits found efficient in England and elsewhere, particularly in regard to food and hygiene, with, in addition, the isolation of those infected with the bacillus.

SECTION OF OTOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 20th, Dr. ALBERT A. GRAY (Glasgow) occupying the chair.

Cupping of Auditory Meatus.

Mr. RICHARD LAKE showed a patient who presented Congenital Cupping of the External Auditory Meatus, with Keratosis. The depression occupied most of the external two-thirds of the meatus, with the exception of the orifice. The patient's mother also had been under Mr. Lake's care for the results of a similar condition. The meatus was first dilated by a tube and then ether was instilled. There had been marked improvement.

Purulent Meningitis.

Mr. J. F. O'MALLEY and Dr. P. WATSON-WILLIAMS showed cases of Purulent Meningitis, in which recovery ensued. Mr. O'Malley's patient collapsed in the street, but the practitioner did not regard the condition as serious and prescribed "ear drops." At the end of the second week pain commenced in the left ear, with attacks of vomiting, followed by deafness. Mr. O'Malley found a large perforation in the right tympanic membrane and some pus in the middle-ear cavity. In the left ear there was profuse suppuration from the middle ear, with total loss of membrane and much granulation tissue posteriorly in the tympanum. There was intense headache, and the neck was held rigid on account of pain caused by attempted flexion. Kernig's sign was absent, and his temperature was 103° F. Lumbar puncture was done, 25 c.cm. of slightly opalescent fluid being drawn off; it was not under great pressure. There were 45 per cent. of polymorphs, 55 per cent. mononuclears, Gram-positive diplococci and Gram-negative bacilli, with marked polar staining. A mastoid operation was carried out and definite sepsis found. A second lumbar puncture was done and there was marked improvement. The recovery was slow but uninterrupted.

Dr. WATSON-WILLIAMS'S case was that of a man, aged 37, who had had running from the left ear since boyhood. At times there was much pain in the ear. He had vertigo, falling to the left, objects viewed appearing to swing to the left; spontaneous nystagmus to the right. There was pain at the back of the neck, with retraction of the head. Lumbar puncture was done and 40 c.cm. of the fluid removed. It was under increased pressure, and the patient's temperature was 100° F. A radical mastoid operation and labyrinthectomy were carried out. The external semicircular canal was opened up, also the ampulla and cochlea. Ten days after the operation the patient again had headache and head retraction. Cerebro-spinal fluid was again removed, and it was very turbid and under pressure. Collosol argentum, 1 c.cm., was intrathecally injected. There were 16,800 leucocytes per c.cm., 90 per cent. polymorphs, diplococci, and *Streptococcus brevis*. Further lumbar punctures and collosal injections were carried out, and gradual convalescence followed. He now walks without experiencing vertigo. There is facial paresis, but no reaction of degeneration.—Mr. E. D. DAVIS, Mr. G. W. DAWSON, Dr. DAN MCKENZIE, Mr. SOMERVILLE HASTINGS, Mr. ARTHUR CHEATLE, Mr. W. STUART-LOW, Mr. G. J. JENKINS, Mr. SYDNEY SCOTT, and Dr. GRAY discussed the cases, and Mr. O'MALLEY and Mr. E. WATSON-WILLIAMS (who exhibited the case for his father) both replied. The latter said cocci were found in the fluid before the operation; and it was difficult to think the labyrinth was infected after the operation, and by the eighth day the wound had granulated and had been dressed with silver-soaked gauze.

Menière's Syndrome.

Mr. L. COLLEDGE showed a man, aged 42, who, five years ago, suffered for 12 months from repeated attacks of giddiness. He recovered from these after an operation on the nose. For two months he had now had repeated attacks of vertigo, in which he fell forwards; he also had deafness and tinnitus of the left ear. The tinnitus was temporarily relieved by catheterisation, but not the deafness. Wassermann reaction was positive, and much improvement had followed inunctions with mercury.

Mr. STUART-LOW recommended ½ g. doses of quinine three times a day for the tinnitus, and the stoppage of tea and tobacco. They should rest in bed for a time.

Dr. W. H. KELSON related a case of his own, five years ago, in which giddiness prevented the man following his occupation. Removal of the wall of the external semicircular canal produced such an improvement that the man could resume his work. He was well two years ago.

Dr. GRAY agreed as to the help derived by the patient resting in bed. He had not found drugs of much use, except iodide of potassium, and even that, if given in sufficient quantity to stop the vertigo, caused so much depression as to make the life of the patient a misery. Deprivation of tea and tobacco he agreed with; any poison was bad for the condition.

Malignant Ear Disease.

Mr. SYDNEY SCOTT showed three Malignant Ear cases, and discussed his operative procedure in each.

Dr. DAN MCKENZIE showed a case of Cyst of the Tympanic Membrane.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

AT a meeting of this section of the Royal Society of Medicine held on Feb. 27th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair, the subject of the Influence of the Accessory Food Factors in Infant Feeding was ably introduced by Dr. E. MELLANBY. Professor D. NOEL PATON followed with a well-considered plea for the investigation of rickets from the clinical and experimental side, and the discussion, which will later be dealt with at length, was continued by Dr. ROBERT HUTCHISON, Dr. C. J. MARTIN, Dr. E. A. BARTON, Dr. ERIC PRITCHARD, and others.

MEDICAL SOCIETY OF LONDON.

SURGICAL TREATMENT OF THE LATER STAGES OF GUNSHOT INJURIES OF THE CHEST AND OF EMPYEMA.

A MEETING of this society was held on Feb. 23rd, Mr. V. WARREN LOW, the President, being in the chair, when Sir CHARTERS J. SYMONDS read a paper with the above title. He said that as the result of war injuries there remained a number of open pleural cavities requiring surgical treatment; these had followed either the drainage of a septic hæmothorax or an open wound. The same was true of some of the empyemas which had not infrequently occurred after the pneumonia complicating influenza. He gave an account of the results of some recent attempts to close these old suppurating pleural cavities. The main object of the investigation was to inquire how far the lung could be released by removal of the adventitious layer covering it—i.e., by decortication. The number of patients submitted to operation was 19, and 24 operations had been performed, counting only those made after the primary drainage. In 14 one operation was sufficient to secure practical recovery; 2 required a further operation for removal of the second rib; 1 had three operations, all comparatively small. The remaining 2 were still under treatment; one had had two operations and the other one; both promised recovery. Of the 19, 1 had had four operations and another six before coming under treatment. Of the cases dealt with, 7 had been the result of ordinary empyema, 1 was a sterile hæmothorax, 6 were examples of septic hæmothorax operated upon soon after the wound, and the remaining 5 had open wounds of the chest. The operations consisted of resection of the ribs in some to obtain access only, in others to bring about collapse of the chest wall as well; of decortication of the lung and removal of the thickened pleura from the thoracic wall; lastly, of the transplantation of flaps of muscle into the cavity. In most of the operations an attempt was made to detach the adventitious layer covering in and binding down the lung; in others the pleura was simply scored. Access was obtained by removal of the fourth and fifth ribs from the front. The thickened pleura was removed from the thoracic wall in those cases where muscle flaps were used. In most of the cases, while the thoracotomy served to bring about closure by the falling in of the thoracic wall, he considered that some expansion did take place when the lung was found to be airless, and that when it had receded, as measured by the probe, some expansion took place later on.

Conditions met with at Operation.

At the operation four conditions were met with. 1. The adventitious layer stripped off easily, exposing an unbroken and glistening pleura; the lung filled the cavity and recovery was rapid. 2. The adventitious layer could be removed and the lung freed, but expansion was not immediately permanent; in this form the air vesicles were torn and air escaped in many places; expansion varied in extent and did not reach his expectations, though, on the whole, the procedure was full of promise. 3. Detachment of the layer was possible, but not without including some of the pleura; there resulted a dark red, spongy, airless lung tissue which rose sponge-like into the cavity and gave promise of some permanence, but so far as could be judged no part became aerated and useful. 4. This type was found in most of the cases of old gunshot wounds and in the empyemata long under drainage; the adventitious layer was part and parcel of the visceral pleura, and the two could not be separated; the lung was dark, firm, airless, and smooth on section, when torn no air escaped, and there was little bleeding; the adventitious layer was thinner, as though it had undergone organisation.

In estimating the size of the cavity the best information was gained by a long curved probe or metal sound. With this the most complete exploration could be made, the swing of the antero-posterior curve giving the lateral dimensions. The end thrust against the chest wall could be appreciated by the hand outside. The X ray screen came next in value both with and without bismuth. In addition to exhibiting the cavity, evidence could be obtained as to the condition of the lung and the movements of the diaphragm—the latter a most important point in prognosis. Auscultation and percussion completely failed to demonstrate the dimensions of the pleural space.

Methods of Using Bismuth.

Two methods of using bismuth were employed, first by filling the cavity, and second by introducing a rubber tube containing bismuth. In the first Dr. R. Heath, of Weymouth, directs that the patient should be placed so that the orifice is uppermost and the bismuth (30 per cent. in paroleine) injected through a rubber tube which reaches the deepest part of the cavity. The tube should be small so that the air can escape. The second, a convenient method, was to fill a thin-walled rubber tube 2 to 3 feet long with bismuth or barium, tie both ends and introduce it into the cavity; in this way a fairly accurate outline of the cavity could be demonstrated. Neither method, however, gave the lateral extent of the cavity unless a stereoscopic picture were made.

The Operations Described.

Having ascertained the position and dimensions of the cavity the fourth and fifth ribs were removed from the front. In recent cases the ribs above and below were retracted, which gave sufficient room to decorticate the whole lung. It was necessary to remove the thickened pleura at the same time. If a little more room was required division of the rib above added materially to the space. When the ribs were approximated, as was found in most of the cases, two ribs would require removal. The adventitious layer could, in a recent case, be broken through with the fingers in front and behind and the lung set free. Then the lung itself was exposed, the adventitious layer coming away and leaving a normal pleura. In older cases the facility with which the adventitious layer could be removed varied greatly. In the fourth variety it could not be detached, and then the pulmonary pleura could be curetted or divided into squares or cut in vertical lines. In addition to removal of ribs to permit collapse of the chest wall, flaps of muscle had been introduced, a procedure especially advisable when the apex was affected, for it was important to leave the first rib, and dangerous to remove it. The cases related showed that by muscle transplantation the apex had been closed. When muscle transplantation was done the thick parietal pleura had been removed except at the apex. In completing the operation the anterior wound had been closed, and a drain left in the old sinus in all the cases with extensive cavity. In some, where the cavity had existed chiefly in the upper part with a small tract leading to the opening the drain had been introduced where the cavity was largest. An important question arose as to whether, after the lung had been freed and filled the pleural cavity it would have been wiser to excise the old drainage opening and close the cavity. In small cavities resulting from open wounds the thick hard pulmonary boundary was scar tissue and not a layer of adventitious material, and should not be disturbed.

Risks from Shock and Septic Infection.

The two risks in these operations were shock and septic infection of the recently divided structures. Since the use of bismuth injections had been resorted to before operation the danger of infection had practically disappeared. In only one of the 24 operations was there any anxiety. The temperature seldom reached 101° F. The men arrived, as a rule, with septic pus and small openings. When necessary the opening was enlarged without removal of bone, and the cavity irrigated with saline and peroxide, and then filled with 30 per cent. bismuth in paroleine daily for three to seven days. At the operation all exposed surfaces were rubbed over with this preparation. Shock had never been of sufficient importance to demand treatment, nor had hæmorrhage given cause for anxiety. The anæsthetic employed had been warm ether.

After-treatment.

After-treatment was a matter of prime importance. Captain H. K. V. Soltau, who carried this out, had varied the reagents. He used the Carrel-Dakin method when the cavity became septic or the discharge abundant, after a time substituting permanganate in some cases. Chloramine-T paste was also used, but, on the whole, proved troublesome, and was difficult to remove when suppuration continued. Peroxide was the customary reagent for irrigation; when a bronchial fistula existed oxygen was employed. Another feature of his practice was early exercise, the patient being allowed up as soon as possible, sent out when the weather was suitable, and encouraged to walk about and do work in the wards. Finally, several wounds were closed by excising the sinus and suturing the muscle and skin. An important feature in the after-treatment was the use of elastic in the bandage in the form of an elastic lace, which obviated restriction of chest expansion and limitation of breathing.

Empyema.

Speaking of empyemata, he said that it would be agreed that the chief cause of delay and failure to recover after empyema operations was faulty drainage. There seemed to be an impression in the minds of a good many that a large tube kept up discharge and prevented closure. He then narrated instances where recovery had been delayed by too early removal of the tube or employment of one too small. Prolongation of septic infection, as shown by continued pyrexia or the abundance of pus, and recurrent pyrexia associated with increase of suppuration were very important causes of delay. He was convinced that these drawbacks could be prevented and removed by irrigation of the pleura at the operation and removal of the fibrinous material. He did not think that there was any danger in irrigation when carried out in the recumbent position. He advocated early operation when an empyema failed to heal. The time had come to interfere and release the lung when a large cavity was demonstrable by a sound or by bismuth at the end of about four weeks. If periods of pyrexia had occurred the operation was then all the more necessary.

Discussion.

Mr. H. E. RAWLENCE, who had collaborated with Sir Charters Symonds in the treatment of these cases, said that the method contrasted very favourably with the older type of operation. When using bismuth the carbonate or the salicylate were easier to introduce than the subnitrate. Anæsthesia had been by oxygen bubbled through warm ether, employing one of the special forms of apparatus used, and preceded by morphia and atropine. Patients seriously ill had expressed themselves as relieved directly after the operation. There had been a remarkable freedom from secondary hæmorrhage.

Sir CHARLES BALLANCE advocated the removal of the hæmothorax early in cases in which this occurred in connexion with gunshot wounds, for if left a foul empyema resulted. Before the war he had been disappointed in the treatment of chronic empyema by the operations of Estlander and Schede. From the point of view of obtaining expansion of the lung and recovery of the patient he favoured the principle of no drainage and reliance on aspiration.

Sir GORDON WATSON said that he had found that in recently wounded men if a hole were left in the chest the mortality was high, and he had endeavoured to get such a hole sewn up even at the advanced dressing station. Of 3000 cases of gunshot wounds of the chest met with during the Paschendaele fighting the mortality was 40 per cent. with an open "sucking" pneumothorax, 40 per cent. from septic pneumothorax which had been drained, and under 30 per cent. when the pneumothorax had been washed out and sewn up. On the Italian front the mortality was much better. Four or five cases of empyema in which he had sponged out the pleura with 1 in 1000 flavine and sewn up the wound completely, and thereafter aspirated daily, did extremely well.

Mr. J. E. H. ROBERTS said that provided that all the solid adventitious material were removed from the chest cases did best if the chest were closed and aspirated. It was a very ordinary occurrence for bacterial infection to disappear when this was done. Possibly the bismuth preparation would save time, and be better than the Carrel-Dakin solution which he had used, but he thought that the solution had a softening effect on fibrous tissue. It was advisable in empyema when the patient's condition permitted to clear out the fibrinous deposit, both on the visceral and parietal pleura. With regard to the anæsthetic the best results were obtained with gas and oxygen, which he combined with a local anæsthetic, believing that it increased the patient's comfort after the recovery of consciousness.

Dr. P. MONTAGUE SMITH read a paper entitled,

THE AFTER-RESULTS OF CERTAIN SURGICAL OPERATIONS.

Speaking of tonsils and adenoids, he detailed the secondary effects produced by their presence. Amongst them he mentioned rheumatism, which, in his opinion, gained an entry through the tonsils. He had observed that epistaxis in childhood appeared to be indicative of rheumatic infection, and others had watched the frequent irregular rises in temperature in children with chorea, and, ascribing this to tonsillar infection, had found that removal of the tonsils benefited the chorea. It was of great importance to remove the tonsils and adenoids before the secondary effects were manifest, and at a time when, by regular inspection of children, it could be ascertained that the throat and nose were *becoming* affected. This operation, intrinsically simple in its character, should be more widely practised and was one that every general practitioner should be able to perform. He saw no advantage in the radical operation of enucleation, since complete removal could be obtained by using the Mackenzie guillotine reversed, and his experience over many years had shown that if a small piece of tonsil were left it did not impair the success of the operation. Tonsils partly removed might, with the growth of the child, assume larger proportions, and, if necessary, be again dealt with. Adenoids undoubtedly might grow again, but seldom to an extent sufficient to require operative treatment, and, if it should appear necessary, a further curettage was a very simple matter. The necessary after-treatment was breathing exercises. The parents should always be instructed as to the great importance of these to institute correct methods of breathing, otherwise the fruits of the operation would be likely to be lost. The after-results were excellent, and, in fact, removal of tonsils and adenoids was one of the most beneficent operations that had ever been devised.

The second preventive operation to which he referred was circumcision. This was commonly inefficiently performed, the frequent fault being that not enough prepuce was removed. For subcutaneous nævus he could not resist the conclusion that the ideal operation, where possible, was excision. The operator should keep wide of the growth, and never endeavour to stop bleeding until it had been removed. In his experience the results of tuberculin in the treatment of tuberculous dactylitis were excellent. For tuberculous glands of the neck he disapproved of set operations and said that treatment on sanatorium lines, dealing with breaking down foci as they occurred, was likely to be successful in the majority of cases. He had found that the treatment of tuberculous peritonitis by opening the abdomen and, if thought advisable, by flushing the peritoneal cavity with saline had been attended, in many cases, with excellent results. After speaking of empyema, hæmorrhoids, and cholecystectomy, he referred to gastro-enterostomy, and regarded it, on the whole, as a remarkably successful operation, though some cases were very disappointing.

Prostatectomy.

His experience with prostatectomy had not been good. From cases in which this had been performed he had learnt several lessons. First, the extreme importance of a most careful and systematic preparation of the patients before operation: (1) by the gradual deflation of the bladder step by step, otherwise there was very considerable risk of hæmorrhage from the release of pressure on the kidney; (2) by the maintenance of the bladder in a practically empty condition for at least a fortnight, if possible, before any operation was undertaken; (3) by a constant endeavour to keep the urine acid by large doses of acid phosphate of soda before operation. Secondly, he had learnt that under any circumstances prostatectomy must be a very grave operation. Thirdly, he understood that bacteriological examination of the urine with these cases *before* catheterisation disclosed a single infection, whichever the organism might be. Fourthly, he learnt that the removal of the prostate did not mean, at any rate invariably, that the patient would be able to empty his bladder correctly. He concluded by saying that he had endeavoured to give a few impressions gathered by one in many years' experience of practice as a general practitioner, and had touched on a variety of subjects on which he might be held by experts in the particular branches alluded to to be erroneous in his views.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. L. RÉNON read a paper on the

Therapeutic Action of the Salts of Radium and Mesothorium.

During the last ten years he had employed the sulphate and bromide of radium and the sulphate and bromide of mesothorium in doses ranging from 1 to 300 microgrammes by mouth or in subcutaneous, intravenous, intrapulmonary, intratracheal, intraperitoneal, intraspinal, and intrapleural injections. He had also studied the effect of these salts upon cultures of various micro-organisms and on experimental tuberculosis in the rabbit. His investigations had shown that the treatment was harmless and that it had a definite analgesic effect, and might be advantageously used in gonococcal arthritis and chronic rheumatism. It might also be employed, in addition to other remedies, in such affections as tuberculosis, in which it sometimes caused an improvement of the general condition with fall of temperature, but without any influence on the subsequent evolution of the lesions.

Treatment of Diarrhœa and Mucous Colitis by Zinc Oxide.

Dr. G. Durand and Dr. H. Dejust stated in a communication on this subject that they regarded oxide of zinc as preferable to the astringents usually prescribed in acute diarrhœa, in which it exercised a precipitating action on mucin and serum albumin. It also possessed antispasmodic properties. Successful results were also obtained with the drug in the treatment of mucous colitis. It could be given in combination with small doses of opium, especially if the colic was very severe or the diarrhœa excessive. The daily doses varied with the cases. In acute diarrhœa it was best to begin with 2 g., divided into ten pills of 0·20 g. each. The daily amount should then be reduced by one or two pills daily, according to the rapidity of the results obtained. In chronic diarrhœa, in which the drug would have to be continued for a longer period, smaller doses would have to be employed—e.g., six pills each containing 0·20 g. daily.

Treatment of Oxyurids by Sulphurous Acid.

Dr. G. Leven in a paper on this subject described a method which he had successfully used for many years. Every evening for a period of five days the bowel was washed out and a rectal injection of eau d'Enghien, slightly warmed, was given slowly and retained. In the adult half a bottle should be used and in the child a quarter of a bottle. The injections were then omitted for four or five days and then resumed for a second or third time if necessary, as long as there were oxyurides in the stools.

Dr. G. Rosenthal described his method of

Intercrico-thyroid Injection with a Curved Needle.

In cases in which it was unnecessary to keep a permanent tube in the trachea he employed a curved needle and cannula, which he introduced into the intercrico-thyroid space. After local anæsthesia with novocain he injected the drug required. The method was specially useful for the injection of adrenalin in hæmoptysis and in asthma.

Employment of Fluoride of Ammonium in Therapeutics.

Dr. Bourgois in a paper on this subject stated that for the last 30 years he had made a careful study of the fluorides of sodium and ammonium. He had chiefly employed the ammonium salt owing to its greater solubility, but the two fluorides were of equal therapeutical value. The conditions in which ammonium fluoride was most useful were pulmonary tuberculosis, acute bronchitis, asthma during the first six or 12 months, the early stages of bone and joint tuberculosis, the prodromal stage of meningitis, gastro-intestinal dyspepsia and chronic gastro-enteritis, and whooping-cough. The results were less constant in chronic bronchitis (simple or tuberculous), asthma of long standing, and chronic arthritis and osteitis.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting of this society was held at 11, Chandos-street, W., on Feb. 17th, Dr. E. E. Flemming, the President, being in the chair.—Dr. Hedda Alstrom read a paper on Mechano-therapeutics, tracing its history from the most ancient times. She showed how, at various periods, it had been held in high esteem, at others it had been looked upon with indifference, until the weight of eminent authority and the pressure of popular opinion had again raised it from oblivion. That this method of healing had not yet taken its proper place as a special branch of medicine, she thought, was due to the fact that art and science had not gone hand in hand, but art was far in advance. Hence many people of all sorts and conditions thought themselves fit to apply it, and in these circumstances it was not possible to get a high and uniform standard of knowledge and practical skill. The work varied accordingly. In many other countries medical men and women, high in their profession, specialised in it, and its theory and practice were taught at the universities. Until the same was done in England we should not get the best out of a good thing. Dr. Alstrom said that she hoped that, in the days when we had learnt that prevention was better than cure, mechano-therapy would be placed on a level with other branches of medicine.—Dr. F. Barrie Lambert then spoke on the need for medical personnel in mechano-therapy. She gave an account of the various kinds of gymnastic training carried out in England, and said that the present-day remedial gymnast was very fully trained and efficient, provided that she held the Incorporated Society of Trained Masseuses' triple qualification of massage, remedial exercises, and medical electricity. The training for the first and second required six months each, and for the third a further three months was necessary. There was also a two years' and, in some cases, a three years' course in educational gymnastics given at the five recognised Swedish training colleges in Great Britain, which included, amongst other subjects, a thorough training in games and æsthetic dancing. The better qualified the gymnasts were the more they asked for medical supervision, but few doctors had sufficient knowledge to supervise. The difficulty of finding medical officers with sufficient knowledge to supervise made the organisation of remedial clinics difficult. Dr. Lambert urged the importance of a short course for all medical students in the theory and practice of massage, remedial gymnastics, and medical electricity, and in the after-care of orthopædic cases.—Dr. A. Kellgren-Cyriax spoke of the need for the extended application of mechano-therapy. She said that Schott's treatment for hearts, Frenkel's coördinated movements for spinal cord diseases, and Cornelius's nerve massage were all adaptations from the Swedish system, and first put on a scientific basis by H. Kellgren. She discovered a method of direct manual nerve stimulation by so-called nerve frictions, and a nerve-soothing treatment by manual vibrations. She said that nerve frictions enabled one to influence every muscle or organ in the body either directly or reflexly, internal organs being stimulated through the rami communicantes of the posterior spinal nerve roots. Nerve vibrations were able to remove pain and inflammation in most cases, and it would be unfortunate if this art were lost to humanity. Dr. Kellgren-Cyriax then showed skiagrams of three surgical cases before and after treatment by mechano-therapy, as well as sphygmographic tracings of mitral incompetence and of mitral stenosis and incompetence before, during, and after treatment by passive and later by active movements. These showed return of the dicrotic wave. She said that mechano-therapy rested on a sound physiological basis, and that there was no danger in prescribing and applying it, if its laws and technique were understood.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society will be held to-day, Friday, March 5th, in the society's rooms, West London Hospital, at 8.30 P.M., when Sir William Hale White will open a discussion on Idiosyncrasy to Drugs.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—A quarterly meeting of the association was held at 11, Chandos-street, London, W., on Feb. 24th, Dr. Bedford Pierce presiding, when Dr. R. H. Steen introduced a discussion on chronic hallucinatory psychosis and its differentiation from paranoia.

HARVEIAN SOCIETY.—At the annual meeting and conversazione of the Harveian Society, held at the rooms of the Medical Society of London, the following were elected officers of the society for the ensuing year: Dr. William Hill, President; Dr. C. D. B. Hale and Mr. Kenneth Lees, secretaries. Dr. James Taylor, the retiring President, then delivered an address entitled "Neurological Jottings." The Harveian Oration will be delivered by Sir Thomas Horder, at the rooms of the Medical Society of London, on Friday, March 12th, at 8.30 P.M. His subject will be "The Diagnostic Significance of Nerve Symptoms in Acute Infections."

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—The monthly meeting of the executive council was held on Feb. 25th at 5, Vere-street, Cavendish-square, W. A letter was read in which Mr. Asquith replied to two questions put to him, on behalf of the Federation, at the Paisley by-election, in regard to the National Insurance medical benefit. Mr. Asquith agreed that there was considerable dissatisfaction in regard to the working of the Insurance Act, and pledged himself to support a demand for inquiry.

It was announced that the following societies had accepted representation and had forwarded subscriptions: The British Dental Association, the Royal British Nurses' Association, the Sydenham District Medical Society, and the Association of Medical Officers of Health. Certain individual members of the Federation were also elected. The report of the special subcommittee appointed to draw up the Memorandum and Articles of Association was received and, after amendment, approved for official submission.

Reviews and Notices of Books.

ESSAYS ON THE SURGERY OF THE TEMPORAL BONE.

By Sir CHARLES A. BALLANCE, K.C.M.G. London: Macmillan and Co., Ltd. Two vols., pp. 612. £5 5*s*.

THESE volumes are a lordly monument to the surgery of the temporal bone. The subject is dealt with comprehensively, and a valuable display of plates affords in some directions historical interest, and in others offers a possible substitute for study in the museum and post-mortem room—indeed, many of these, especially the more diagrammatic, should be of high educational value. The text, however, is the thing. It is erudite, full of ripe experience and excellent description; we have here a book which the specialist may consult, always to find something suggestive or informatory, while a great range of knowledge is opened to the more general student. The author traverses the whole history of the surgery of the temporal bone, from ancient hints of knowledge to modern practice, and includes in his scope the intracranial complications of middle-ear suppuration in very full treatment. In connexion with these there are useful excursions into the allied portions of neurology, and much excellent naked-eye pathology.

The book has been in preparation for a good many years, and, to some extent, suffers in consequence, as do all encyclopædic works, from the fact that the earlier chapters need some additions before the last is finished; and it goes without saying that points arise in a book of this magnitude on which differences of opinion exist. But the statement is always fair, and indeed possibly our only quarrel with the author would be on the ground that his modesty conceals the notable share which he has borne in the development of the surgery of the temporal bone.

With the author's plea in the preface for the better recognition of the importance of aural surgery in our teaching hospitals we most heartily agree. The status of the aural department has, it is true, improved as the result of much hard fighting on the part of the aural surgeons, but the equipment of beds is still in many of our great London hospitals pitifully inadequate, and the student is generally conspicuous by his absence. Yet there is no department of surgery which is going to be of greater value to the practitioner when he is thrown on his own resources, and none which offers better training in logical diagnostic methods and keen observation. And on the side of public service it is hardly possible to imagine a more beneficial use of endowment than the provision of additional beds for aural patients.

DISEASES OF WOMEN.

By THOMAS G. STEVENS, M.D., B.S. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Obstetric Surgeon, St. Mary's Hospital, Paddington, &c. New edition, thoroughly revised and entirely reset. London: University of London Press, Ltd. 1919. With 202 illustrations. Pp. 443. 20*s*.

IN reviewing the first edition of this work we pointed out that in it gynæcology had been presented on a pathological basis, and that Dr. Stevens's reputation as a pathologist gave value to his views on the subject. The book has proved of the greatest assistance to students, and they, at any rate, have appreciated thoroughly the arrangement adopted by the author. In this new edition there has been a considerable amount of revision, and many parts have been entirely rewritten. The section on syphilis has been revised by Mr. Alfred Allport and contains a good account of the modern method of treatment. Six injections of 914 at weekly intervals are recommended, followed, when possible, by 18 months' treatment by mercury, preferably in the form of intramuscular injections of grey oil into the buttock. If the intramuscular injections are well tolerated they are to be given in courses of eight weekly injections. Such courses should be separated by one month's treatment with potassium iodide or collosol iodine and then one month's rest. A Wassermann test should then be done and mercury recommenced, even if the Wassermann test is negative. We notice that under the causes of pure menorrhagia the author includes chronic bronchitis or emphysema: surely such a cause is very uncommon.

As might be anticipated, Dr. Stevens's views on the subject of erosion are sound, and he shows very clearly that this condition is always the result of some chronic infection, and that the term adenoma applied to it by some authors gives quite an erroneous view of its etiology and pathology. Considering the difficulty most students experience in understanding how a Hodge pessary acts it is a pity the author has not elaborated his account a little more, especially in view of the misleading conceptions of its action to be found in many text-books on gynæcology. We would suggest that the diagrams illustrating the process of tubal abortion would be improved if it were made quite clear that at first the ovum is really imbedded in the wall of the tube. The index might with advantage be a little fuller, and we notice no entry under Ureter.

The book is a very good one, and may be recommended to the student as well written, not too prolix, and full of the best kind of teaching.

ATLAS OF OPERATIVE GYNÆCOLOGY.

By BARTON COOKE HIRST, M.D., Professor of Obstetrics, University of Pennsylvania. London and Philadelphia: J. B. Lippincott Company. 1919. With 164 plates and 64 figures. Pp. 292. 30*s*.

THE author has attempted the graphic method of describing operations for conditions peculiar to women by a series of coloured illustrations showing the separate steps of each operative procedure. The views expressed and the operative technique advocated are based on many years' experience. The author is opposed to the practice of smearing tincture of iodine on the skin of the abdomen, and then immediately incising it, as, indeed, are most surgeons, and the majority of those who use iodine in this country precede its use by a careful cleansing of the skin before the operation with some other antiseptic. The practice, followed by Professor Hirst, of covering the edges of the wound with a rubber dam, which is sewn to the peritoneum, is a very good one, and excludes with certainty the chances of infecting the edges of the wound, or of the gloves becoming infected by contact with the skin of the patient. The necessity for many secondary repairs of the pelvic floor could, Professor Hirst thinks, be overcome by the more frequent practice of what he terms intermediate operations performed some five days or so after delivery, and done then as completely as may be necessary. For dealing with a cystocele the interposition operation of Watkins is advised. Most gynæcologists in this country would regard this as rather a severe measure.

In the operative treatment of retroversion of the uterus the author, through a Pfannenstiel incision, both shortens the round ligaments in the inguinal canals and also, after opening the abdomen and inspecting the pelvic organs, suspends the uterus to the peritoneum with a single strand of No. 3 catgut. He states that this procedure has given him very good results. We are surprised to find that the author favours abdominal rather than pelvic drainage in cases where drainage is necessary. In discussing the mortality following Wertheim's operation, it is suggested that the more extended use of gas and oxygen anæsthesia may help to lower the immediate mortality, but nothing is said of the great advantages to be gained from a combination of spinal anæsthesia with the use of a small amount of ether; this method yields extremely good results and greatly expedites the performance of the operation. The various methods of carrying out Cæsarean section are well and fully described, and we are glad to see that the operation of pubiotomy is not recommended; it has, as stated, an interesting history, but the need for the operation has now disappeared.

Professor Hirst has produced a very good and useful atlas. It should prove of great assistance to the young operator, and it forms an interesting summary of the operative methods of a distinguished American obstetrician and gynæcologist.

A MANUAL OF HYGIENE AND SANITATION.

By SENECA EGBERT, A.M., M.D. Seventh edition. Philadelphia and New York: Lea and Febiger. 1919. With 160 engravings and 5 plates. Pp. 554.

THE present is the seventh edition of this work, and, like its predecessors, it contains a clear and concise statement of the fundamental principles of hygiene and sanitation. Perhaps no branch of medicine has advanced more rapidly in recent years than that of public health, and opportunity has therefore been taken by the author, in issuing a new and enlarged edition, to revise the text and bring it thoroughly up to date. Special attention has been devoted to the chapters on sewage disposal, industrial hygiene, and military hygiene. The first of these subjects is developing rapidly in importance in the United States of America on account of the growing realisation of its influence upon the health and comfort of communities, both large and small. The second is likely to come more and more into prominence in view of the extensive expansion of industrial enterprise which may be expected to take place after the war, while the third is of interest to the student of public health because of the important part which it played in the recent world war. There are besides chapters on bacteriology and parasitology; the atmosphere; ventilation and heating; water; food; stimulants and beverages; personal hygiene; school hygiene; disinfection; quarantine; vital statistics; the examination of air, water, and food.

The illustrations are, for the most part, excellent, serving to elucidate the subjects to which consideration is given. The book may be confidently recommended for the use of students and all, indeed, interested in public health.

PYE'S ELEMENTARY BANDAGING AND SURGICAL DRESSING.

With Directions Concerning the Immediate Treatment of Cases of Emergency. By V. ZACHARY COPE, B.A., M.D., M.S. Lond., F.R.C.S. Eng. Fourteenth edition. London: Simpkin, Marshall, and St. John Ambulance Association. Bristol: John Wright and Son. 1919. Pp. 232. 3*s.* 6*d.*

THIS well-known book is a reprint of a portion of Pye's "Surgical Handicraft," the present issue being adapted from the eighth edition of that work by Dr. W. H. Clayton-Greene. Within its scope the book is complete, and forms a useful compendium of information for the beginner, whether medical student or nurse, in the wards of the hospital or in the casualty room.

TRAITEMENT DU DIABÈTE SUCRÉ.

La Cure de Bouchardat. Par F. RATHERY, Professeur Agrégé à la Faculté de Médecine de Paris; Médecin des Hôpitaux. Paris: Librairie Félix Algan. 1920. Pp. 276. 8 fr.

THE knowledge and management of diabetes in France during the last half-century have not made the progress which might be expected in the country of Claude Bernard. With the exception of the treatment by fasting and purgation proposed by Guelpa on empirical grounds, no important contribution to the subject has been added by French physicians in recent years, and, judging by the contents of the volume under review, tradition still holds sway. Dr. Rathery's book is avowedly a résumé of the ideas and methods of A. Bouchardat, based partly on that physician's "De la Glycosurie ou Diabète Sucré," published in 1883, and partly on oral information transmitted by his son to Dr. Rathery, his stepson. Where modern views on the ætiology and pathology of diabetes are mentioned it is in order that credit for their anticipation may be given to Bouchardat, and, as the title indicates, the treatment advocated is the modified Rollo method devised by him; other forms of treatment are not mentioned or are dismissed with brief notice. Bouchardat is rightly classed as one of the most brilliant physicians in the history of diabetes; he revived and transformed Rollo's crude and unscientific methods, invented gluten bread, and introduced the intelligent use of exercise for diabetics, beside making important contributions to the pathology of the disease. But we think that he would have acknowledged that his methods were capable of improvement and likely to be modified in the light of further discovery. Ancestor worship does not make for progress, and the truth of this statement is exemplified by Dr. Rathery's book.

THE PRINCIPLES OF NURSING.

By C. A. BROWN, R.N. Philadelphia and New York: Lea and Febiger. 1919. Pp. 262.

As the author rightly states in her preface to this book, it is essentially elementary, but may prove of substantial value to nurses in their first year of training. In addition to outlining the underlying principles of nursing, the author has successfully conveyed to the student nurse a little of the finesse to be achieved in nursing, and how this can be done under conditions often far from ideal. There are valuable chapters on Anæsthetics and the Post-operative Care of Patients, two subjects the importance of which is often overlooked or minimised in text-books for nurses.

The arrangement of matter might have been improved upon, as terms which are used in describing treatment are often explained many chapters ahead; and sometimes, indeed, these terms are not explained at all. It is to be regretted that the system of cross-indexing has not been employed, for this would have increased considerably the value of the book.

The absence of detail, which is essential to the more advanced student of nursing, makes the book of little value to nurses preparing to enter their final examinations, but it should help considerably to prepare those entering a training school for the responsible duties which lie before them.

HEALTH IN THE HOME.

By A. KNYVETT GORDON, M.B., B.C., B.A. Cantab. London: Jarrolds, Ltd. 1919. Pp. 245. 5*s.*

THE author's aim is to place before non-medical readers a brief account of the meaning of the symptoms of disease, with the object of assisting in its prevention and of enabling the sufferer or his relatives to appreciate in a general way what may be the matter. Like a quarrel, getting well needs two parties, and coöperation between these parties is essential. In this direction Dr. Gordon's book is useful, indicating, as it does, the best way in which to prevent disease, beginning from the care of the young. The first part of the book deals in broad outline with the mechanism of the body, and with the general conception of health and disease; the second discusses various symptoms of disease, pain, cough, vomiting, fainting, and so forth, and touches upon infections, venereal diseases receiving only a passing reference. In the third part, dealing with domestic hygiene, stress is laid upon the care of the young, faulty methods at this stage of life being recognised as the cause of much avoidable sickness and distress in after years. An appendix gives receipts for invalid recovery, and the caloric values of common foods with specimen menus.

THE METALS OF THE RARE EARTHS.

By JAMES FREDERICK SPENCER, D.Sc. London: Longmans, Green, and Co. 1919. Pp. 280. 12*s.* 6*d.*

THE history of the discovery of the rare earths, as described in this volume, makes very interesting reading. Although so far these substances have little significance in medicine they may well gain in this direction in the future. The importance which some of them have assumed in the commercial world is well known. The best example, perhaps, of rare earths coming into wide service was when the gas incandescent mantle was made from the rare earths thoria and ceria, a discovery which saved the gas industry from disaster as a source of illuminating power, in face of the rapid improvements developing in electric methods of lighting. In the chemical world, also, some of the rare earths are taking their place as eminent catalysts, effecting combinations with ease, economy, and rapidity, succeeding processes which before were tedious. The book gives particulars of these technical applications, and records as well the processes by which the rare earths are separated and the analytical methods for their estimation.

JOURNALS.

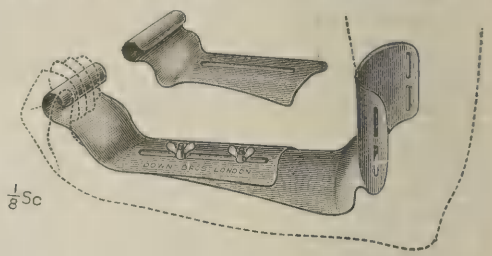
Tubercle. A Monthly Journal Devoted to All Aspects of Tuberculosis. Vol. I., No. 5. February, 1920.—In the February number Dr. Morriston Davies leads off with a Consideration of the Treatment of Pulmonary Tuberculosis by Surgical Intervention, devoted mainly to those procedures which are applicable when artificial pneumothorax has failed owing to adhesions. Resection of ribs and rib cartilages may be employed when general collapse of the lung is aimed at, while two procedures—(1) replacement by a foreign body when collapse of the upper lobe is desired, and (2) section of the phrenic nerve in order to collapse the lower lobe—are also discussed. The latter operation is especially of use when severe cough is due to diaphragmatic adhesions. Another operation—viz., limited artificial pneumothorax by injection of oxygen—is recommended for relief of obstinate pain in cases of dry pleurisy.—Dr. H. A. Ellis follows with an article on dispensary treatment, in which he maintains "that this method of controlling pulmonary tubercle is on the right lines must be admitted when the diminished death-rate from adult male tubercle in Middlesbrough is realised." These deaths numbered 95, 88, 81, 81, and 69 in the years 1914–18 in spite of a large increase of population. Taken alone the figures are impressive, but we find from the report that the total deaths from pulmonary tubercle varied little, owing to a rise in the female deaths, consequent on war conditions. An encouraging report is quoted from Dr. Tennberg, giving the results of ten years' experimental trial of dispensary methods in a certain parish in Finland, and the report is the more valuable because the wholesale examinations of the population at the beginning and end (1909 and 1919) were carried out by the author. There was special concentration on child welfare, and, while the incidence of pulmonary tuberculosis among the general population was reduced more than 50 per cent., the best results were obtained in early life. Among the abstracts is a series on chemotherapy reporting good results from the use of cyanocuprol, and in pneumococcic complications of optochin. Copper sulphate (1 in 1,000,000) has been used effectively for some years in clearing ponds of offensive algæ without harm to fish (so far as reports go), and the results of the therapeutic use of copper will be watched with great interest. A critical review deals further with this agent and the history of its employment. The number closes with valuable reports of lectures and meetings.

Bulletins et Mémoires de la Société Médicale des Hôpitaux de Bucarest. Nos. 1–8.—Whatever may be the physical difficulties of life in the Near East, it is clear that the science of medicine is not neglected. The first number of this bulletin appeared within four months of the signing of the armistice, and since its first appearance one number has been published monthly, excepting during the vacations. Each number contains two or more communications made at the previous session of the society. Papers dealing with typhus and pellagra make interesting reading to those who are not in daily association with these diseases. The last number to reach us contains an article on the Ætiology of Dementia Præcox, in which the author, Dr. A. Popéa, is "strongly inclined" to credit syphilis with being the cause of this disease. His argument depends largely on the results of Wassermann tests which are not sufficiently numerous to be convincing. The argument suffers, too, from the absence of any control experiments on the normal population. Also we are a little surprised to hear dementia præcox described as "bien isolée en clinique." The bulletin is printed throughout in French and several of the advertisers have addresses in Paris, which suggests that the journal is intended for consumption in France as well as in Roumania. Subscriptions, 40 lei, are received by Dr. Alexandresco-Dersca, Bd. de la Catargi 2, Bucarest.

New Inventions.

A NEW SPLINT FOR COLLES'S FRACTURE.

IN the treatment of Colles's fracture, good results are often obtained by flexing the wrist sharply—e.g., over an anterior rectangular splint. This method is specially valuable in cases in which the lower radial fragment shows a tendency to rotate backward. Given perfect reduction, and skilled after-treatment, the full normal range of flexion and extension will always be recovered; and pronation will be unimpaired also, because the hand was put up fully pronated. Supination is not a common movement, and therefore it tends to become limited, unless especial care is taken to cultivate it. The splint here illustrated is expressly devised to prevent any loss of supination, whilst retaining all the advantages of the older methods. It consists essentially of an anterior flexed-wrist splint, combined with an arm-piece which keeps the forearm fully supinated. It is made of light sheet-metal, and is adjustable for any length of forearm; the wrist is bent to a suitable angle, and a comfortable rolled lower edge is provided for the fingers to grip. It will be found that one or other of the two hand-pieces provided will fit any patient who has a Colles's fracture. It is of the utmost importance that the fracture should be fully reduced before the splint is applied; the latter should be padded with a single layer of Gamgee tissue or thin felt, and fastened on by webbing bands round the arm and forearm and a piece of strapping or bandage round the metacarpal region. The position is not in the least irksome, which is not the case with other supination splints. Generally speaking, the splint should be removed for good in a week's time, and massage should be employed from the very first. With perseverance all movements should be completely restored.

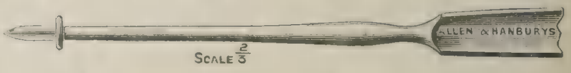


The splint has been made for me by Messrs. Down Bros. ALAN H. TODD, M.S., B.Sc. Lond., F.R.C.S. Eng.
Portland-place, W.

TONSIL BAYONET

FOR OPENING PERITONSILLAR ABSCESSES.

IN opening peritonsillar abscesses it is usual to employ one of the following instruments: (1) a small scalpel guarded with strapping; (2) unguarded forceps. When employing the scalpel it is difficult to sterilise the strapping; in the case of the unguarded forceps it is easy to go too far in searching for deep pus. With the idea of overcoming these two disadvantages I have had made for me the instrument here figured and claim for it the following advantages: (1) Ease of sterilisation; (2) the presence of a collar, which prohibits the operator stabbing too deeply; (3) the double-edged bayonet, which facilitates the conversion of the stab into an incision in either an upward or downward direction. The operation can then be completed with blunt forceps quite safely.



Messrs. Allen and Hanburys are the makers of the instrument. A. SCOTT GILLETT, F.R.C.S. Edin.
Connaught-square, W.

THE LANCET.

LONDON: SATURDAY, MARCH 6, 1920.

A Physical Census.[1]

FROM the point of view of national health there has within the last few days been published, as from the Ministry of National Service (1917–1919), a document of the highest importance—namely, a first Report upon the Physical Examination of Men of Military Age by National Service Boards from Nov. 1st, 1917, to Oct. 31st, 1918. If Sir AUCKLAND GEDDES, himself a medical man, had during the war accomplished nothing else than inaugurate the scheme under which this physical census of the people has been taken, the nation as well as the medical profession would owe to him a deep debt of gratitude for a vast public service. Now, for the first time, there is provided for us a mass of material worked out upon a uniform system, which throws clear light upon the physical condition of the manhood of England, Scotland, and Wales, and upon the effects of industrial life and occupation upon the well-being of our people. Those effects are seen to be so pronounced that action must follow.

We deal for the time being only with a consideration of the circumstances leading up to the physical census of 1917–18: the quality of the material presented for examination, the method of examination, and the value that may safely be attributed to the results obtained. Great as was the work performed by the R.A.M.C. during the war from the immediate start, no one will deny that in the matter of the physical examination of the recruit the organisation began imperfectly. There was no adequate attempt to standardise the work of the medical boards; there was not even a published code bringing up to date from time to time the instructions issued regarding acceptance and rejection of the recruits. As the war went on, and the country, gradually awakening to the magnitude of the efforts necessary to avert destruction, evolved and improved its organisation for war, the prime importance of the man-power of the nation received adequate recognition. Month by month, week by week, it became increasingly clear that the demand of the various armies for men must be paramount, although the need for keeping the vital industries of the country adequately supplied with sufficient personnel was as essential to ultimate success as the supply of fighting men. In due course, so urgent became the need, industries hitherto protected were "combed out" in response to the insistent demands of the fighting forces for men. In the past the medical boards had been attempting to perform two functions: (1) to determine whether a man was or was not physically fit to enter the army; (2) to classify the men, whom they considered sufficiently fit, for some form of service in categories from which they could readily be posted to suitable corps and army units. Owing to the absence of clear-cut instructions and lack of training of the medical officers appointed for these duties in standardisation, it will be remembered that the action of the boards had to bear severe criticism. Then, under the Military Service Act of 1917, with the introduction of compulsory military service, the Government withdrew the matter of categorisation from the army and placed it under the control of the Minister of National Service, who forthwith proceeded to organise the physical examination of the men called up, placing the task under the direction of Sir JAMES GALLOWAY and a small but carefully selected committee. The country was divided into regions, and Commissioners were placed in charge of each, with Deputy Commissioners and staff under them. The Deputy Commissioners were brought together and trained so as to take coördinate action and arrive at a common agreement regarding the categorisation of doubtful cases; a clear and admirable code of directions was placed in the hands of every member of the new boards, and all endeavour was made to bring it about that, from one end of Great Britain to the other, the physical examinations were conducted under a single standard.

The new boards began action upon Nov. 1st, 1917. As a result, during the fourth year of the war—the year under review—there came up for examination by the boards (1) a large body of men in protected industries, where in the nature of things an abnormally high proportion of the physically fit were employed; (2) men previously rejected, when the need was less urgent, and now called up for re-examination; (3) men now refused for exemption by tribunals, owing to the urgent demand occasioned by the military situation; (4) a large number of lads who attained the age of 18 during the year; and (5) a relatively small number of men between 41 and 51 who during the year (in April, 1918) became liable for military service under the Military Service (No. 2) Act. The material examined and re-examined during the year under review consisted altogether of close upon two and a half million men, and, as everyone knows, the resulting classification was a shock to any complacency which this country may have felt in its national physique. For while only 10 per cent. were rejected as totally and permanently unfit, not more than 36 per cent. were passed as possessing a full normal standard of health, leaving 54 per cent. to be divided between two classes whose members manifested some or marked physical defects. The reasons underlying the classification are given, as far as they have yet been published, in a document which all should study closely and which will come under further review. We note with pleasure this passage closing Sir JAMES GALLOWAY'S official letter, presenting the report of his Committee to Sir AUCKLAND GEDDES—

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[1] Report upon the Physical Examination of Men of Military Age by National Service Medical Boards from Nov. 1st, 1917–Oct. 31st, 1918.

> Until the end of March, 1919, the Committee acted under your direct instructions as Minister of National Service with Dr. H. W. Kaye, the personal assistant of the Chief Commissioner of Medical Services, as Secretary. When the Medical Department of the Ministry of National Service finished its work the responsibility of carrying on our investigations devolved entirely on our Secretary.
>
> The Committee now desire to express their high appreciation of the enthusiasm and perseverance shown by Dr. Kaye in carrying forward our work to the stage reached in this Report. We desire also to take this opportunity of recognising the valuable work of the Commissioners and Deputy Commissioners of Medical Services and the numerous members of our profession throughout the country; their observations form the basis of the whole Report.

The praise thus meted out has been thoroughly well deserved.

The Reproach of Psychiatry in England.

OF all the branches of medicine psychiatry seems still to suffer from that relative neglect and to labour under those disadvantages which tradition assigns to the lot of the youngest sister. From time to time the calm of apparent stagnation is ruffled by some breeze of public agitation seeking to direct attention to defects, administrative or otherwise, yet such superficial disturbance bears little proportion to the immense undercurrent of dissatisfaction running strongly, within the profession itself, in the minds of all who have the interests of psychiatry in England at heart. If we inquire the reasons of this they are found to reside in a combination of factors on which stress has been laid repeatedly, with as yet little obvious result. It is imperative that the fons et origo of the dissatisfaction, which percolates through all the strata of asylum life, should be clearly laid bare, else the stream will continue to run muddily. It will, we believe, be granted that the scientific health of the asylum unit—that is, of the medical staff—takes its tone from the superintendent; should he be keen on the advancement of psychiatric learning, his subordinates find themselves in a stimulating atmosphere the influence of which is reflected in the actual treatment of the inmates, as well as in the contributions from the staff to the body of psychiatric doctrine. On the other hand, if the senior has been selected more for social than for scientific equipment, or should he allow himself to be more concerned with the asylum laundry or meat-supply than with the healing of the mind, not only is the general scientific level of the institution lowered, but any junior medical officer is only too apt to find his youthful enthusiasm starved in an uncongenial environment; he sinks to the humdrum level of those with whom he is inevitably in such close association. The asylum officer who can rise superior to depressing surroundings is the exception. We should be the last to belittle the importance of social and administrative gifts in the smooth running of the asylum communities of the country, which from their very nature must be self-contained and self-sufficient, but psychiatry exists as a branch of medicine for the prevention and cure of mental disease, and nothing can ever be permitted to usurp this function. No elaborate schemes of internal decoration, no ingenuity of kitchen appliances, no perfectly fitted miniature theatres or admirably supplied gardens, farms, and piggeries, can make up for indifference to clinical and pathological reports, neglect of modern technique in treatment, or absence of stimulus to increase the annual percentage of cures or relief.

The promotion or advancement of a medical officer, further, sometimes seems to depend so little on his professional knowledge that he has scant inducement to devote himself to an earnest study of the subject. His work is too often seen to begin and end with the discharge of routine—essential duties which fatigue without stimulating—and with the accomplishment of which any incentive to personal research vanishes. When he has time to think over things he fully realises the tremendous material at his disposal, the fascination of the study of the complex case, the therapeutic problems with which he is surrounded, yet evening finds him unable or disinclined to sit down to serious work. There is, however, another reason for the paucity of scientific output. Friendly conversation with the average asylum medical officer has often elicited the confession that he does not know how or where to begin his task; he is conscious of not being abreast of knowledge in many instances, and is sorely in lack of a guiding and advising mind. If this position be analysed it will be seen to derive from the fact that so few centres for the organised teaching of psychiatry exist, and the equipment of some leaves much to be desired. Of how many of our asylum officers can it be said that they have attended courses of theoretic and practical psychiatry at home or abroad? When do they get a four or six weeks' leave of absence to follow post-graduate instruction in their life's work at a recognised centre? Nay, how many of them have ever spent an unforgettable Wanderjahr in foreign school or laboratory prior to their entering on their professional career of psychiatric expert? Not that foreign experience of itself confers a cachet unobtainable at home, for our home material, in no way inferior, is calling out for investigation and research; but as long as our young medical officers drift untrained into asylum work, so long will the reproach continue that in this country psychiatry is not adequately studied.

On other occasions we have spoken of the peculiar restrictions and handicaps of certain phases of asylum life for the junior staff; we are more concerned for the present to appeal emphatically for better chances for training, better facilities to keep abreast of scientific advance, greater endeavour to make the first step on the ladder encouraging, more serious efforts to utilise precious time and valuable stuff. Is it too much to hope that the authorities who control asylum affairs should one day claim a certain standard of professional attainment on the part of medical officers entering the service, and insist similarly on granting members of asylum staffs post-graduate leave? We are confident that the outlook is bright in reality, and that the stirring among what only the cynic would call the dry bones augurs well for the future. We can imagine a central authority fully conversant with the best methods employed in the whole range of the practice of psychiatry and able to give local bodies information and guidance as to management, equipment, and expectation of output on the scientific side no less than on the others; we can foresee the day when prophylaxis and prevention will be elevated to their true importance by the establishment of clinics and observation wards staffed by trained men with all-round experience. The problem confronting us is the elaboration of the best way to organise and utilise the sources of psychiatric energy which, we are convinced, are only waiting to be tapped.

Thyroid and Sex Development.

WIDESPREAD interest appears to have been aroused by recent articles in the daily press, in which somewhat highly coloured descriptions have been given of experiments by Mr. JULIAN HUXLEY and others on the effects of administering thyroid extract to animals. Although the beneficial effects of thyroid extract in cretinism and myxœdema have long been known, there still remains much to be discovered in regard to the functions of the thyroid and other ductless glands, and it is to be hoped that Mr. HUXLEY'S work may assist towards clearing away the obscurity which surrounds them. It cannot be expected, however, that the work of even the most brilliant investigator will immediately unravel the complicated inter-relations which undoubtedly subsist between the various "endocrine" organs, and still less is it likely that the result will provide for mankind an "elixir of life" or prescription for perennial youth. Mr. HUXLEY'S experiments, if we may trust the daily press, confirm and amplify the conclusion reached by previous workers on the subject that the thyroid plays an important part in bringing about the metamorphosis in amphibia, and this is doubtless but a special case of the intensification of metabolic and developmental processes known to be induced by the thyroid hormone. There is also good reason for the belief that the same hormone is concerned with the onset of sexual maturity, and it has even been suggested that, in Amphibia at least, it may play a part in the determination of sex itself. For it has been observed by R. HERTWIG and others that when the fertilisation of frog's eggs is delayed much beyond the normal time, a greatly increased percentage of male tadpoles is produced, and ADLER recorded that these tadpoles had hypertrophied thyroids. It seems unlikely, however, that this conclusion, even if substantiated for Amphibia, can be of general application, for the evidence that sex is determined in very many cases by the presence or absence of a definite "sex-chromosome" is now overwhelmingly strong. It is conceivable, however, that the sex-chromosome may cause the production of a hormone which is the more immediate agent in sex determination, and that in Amphibia, and possibly other animals, its effect may be imitated by the thyroid secretion.

The part of the subject in which our knowledge is most imperfect is that concerning the relations of the thyroid and other endocrine secretions to the hormones produced by the genital glands themselves. Much evidence has been obtained in recent years that the appearance of secondary sexual characters is largely determined by secretions from the ovary or testis, and the work of LILLIE on twin fœtuses in cattle, in which the fœtal membranes and blood systems become confluent, indicates that an originally female embryo can be converted almost into a male by the testicular hormone derived from its twin. But that these sexual characters are not determined by the secretions of the genital glands alone is proved by the existence, in birds at least, of gynandromorphs, which have male characters on one side of the body and female on the other. Nor is it certain that all the effects produced are due to the genital hormones directly, for it has been suggested that these may act in an indirect manner by stimulating the thyroid, the pituitary body, and perhaps other ductless glands to produce greater or less amounts of secretion; thus in respect of some sexual features at least it is these latter substances that may be the effective agents. It seems clear, therefore, that although we have considerable knowledge of the effects caused by insufficiency of any one of these glands, and are therefore able to a large extent to supply the remedy, we are still far from a complete understanding of their combined action or of how their activity is correlated. Some of the articles we have seen in the lay press, dealing with Mr. HUXLEY'S investigations, suggest that knowledge has gone much farther, and to this extent have been misleading.

Rewards for Medical Discovery.

THE deputation from the British Medical Association and the British Science Guild which, along with representative medical Members of Parliament, waited on Mr. BALFOUR on Tuesday afternoon, was sympathetically received by the Lord President of the Privy Council. The deputation suggested the allocation of a sum of £20,000 a year to be divided among medical discoverers who benefit their fellow-men without themselves deriving pecuniary benefit therefrom. Mr. BALFOUR unerringly singled out the chief difficulty in such a scheme—namely, that of deciding equitably on the actual originator of a discovery. Medical science is essentially evolutionary, the departures of the present being alike founded on the knowledge of the past and directed towards the developments of the future. Many will be constrained to agree with Mr. BALFOUR that a better way is to make the life of the investigator less hard, and his work an end in itself. We welcome the encouragement, implied in Mr. BALFOUR'S words, of the endowment of research, though it is easy to see that, even with such endowment, medical discoverers might frequently go unrewarded.

Annotations.

"Ne quid nimis."

ROYAL ARMY MEDICAL CORPS WAR MEMORIAL.

A REPRESENTATIVE Committee has been constituted to put into execution a scheme for erecting a permanent memorial to the officers, non-commissioned officers, and men of the Royal Army Medical Corps who fell in the war. The Committee numbers on its body members of the Regular, the Special, the Reserve, the Territorial, and the Civilian Medical Services, to whom have been added the Presidents of the Royal Corporations and the past and present Director-Generals of the Service. Ireland, Scotland, England, and Wales are all voiced on the Committee, and at a large and authoritative meeting the following decisions have now been agreed to:—

1. That a permanent memorial should be erected in London, with replicas in Edinburgh and Dublin, if funds were available.
2. That the names of officers, non-commissioned officers, and men who had fallen in the war should be inscribed on the memorial.
3. That funds "ear-marked" for the benefit of families should be devoted to that purpose.
4. That it should be open to the public to subscribe such sums as they wish.
5. That subscriptions should be sent to the honorary secretary, R.A.M.C. War Memorial Fund, Captain A. R. Wright, D.S.O., War Office, Cornwall House, Stamford-street, S.E. 1.

We need not point out how heartily we sympathise with this movement, and we are glad, also, to see that public subscriptions will be admitted. We shall be surprised if a war memorial to the Royal Army Medical Corps does not receive support from the public, who have appreciated the splendid share which the Corps took in the war, and who, to some extent, are aware of the professional and private sacrifices made by many thousands of doctors at the call of the country. The decision of the Committee that funds can be ear-marked for the benefit of the families of the fallen is a wise one; it may be that a large proportion of the money received will be designed for this object.

INFLUENZA, HERE AND IN U.S.A.

THE Ministry of Health has communicated to the press a statement as to the position of epidemic influenza at home and in the United States. Influenza is epidemic in many large American cities, and the disease is of the same kind as was observed in 1918–19, except that the proportion of severe or fatal cases in persons attacked is appreciably smaller. The vital statistics of England and Wales exhibits the following features, the Ministry state:—

(1) The weekly totals of deaths attributed to influenza in London and the 96 great towns have, on the whole, tended to increase, but the absolute increments are so small and the necessary uncertainty of classification so great that no unfavourable inferences can be drawn from these fluctuations.

(2) The returns of notified cases of pneumonia have exhibited an appreciable increase, too large to be set down as a mere chance fluctuation. The system of notification, however, has not been in force long enough to allow of comparison with the experience of a normal year; hence an uncertain proportion of the undoubted increase may be due to customary seasonal variations.

(3) There are no indications of epidemic influenza in any of the large factories situated in various parts of the country which furnish special returns to the Ministry. On the other hand, there is proof of the existence of epidemic influenza of an infectious but relatively non-fatal type in certain large schools situated in the south and south-west of England. Measures have been taken to deal with these outbreaks upon the general lines indicated in the previous communiqué.

It is apparent from these circumstances that influenza is epidemic in a few localised English and Welsh communities, and that the type is similar to but less severe than that of 1918–19. While this is a very different situation from that occurring in American cities and in certain parts of Europe, the Ministry is none the less anxious that the public should take heed to the possibilities. The increase of the number of notified cases of pneumonia, and the existence of epidemic influenza in certain schools, make it advisable to direct attention to the importance of attention to the measures already advised to be taken,[1] advice which has been followed widely by public health authorities and the medical profession, when concerting appropriate measures to deal with emergencies.

A NEW MONTHLY JOURNAL OF EXPERIMENTAL PATHOLOGY.

IT is a remarkable fact that such a vigorous branch of medical science as pathology has hitherto been served in this country by only one special journal, which, appearing quarterly, has naturally been unable to publish more than a modicum of the regular flow of articles on pathological subjects. The consequence of this is to be seen in the scattering of such scientific communications through almost every kind of medical publication. Absence of ready reference and delay in the appearance of original work have impeded the natural growth of pathological science, and any attempt to remove such obvious drawbacks to progress is welcome. The *British Journal of Experimental Pathology*, the first number of which has just been issued, is a determined attempt to fill the gap. We are glad to see that the editors construe pathology in its broadest sense; they propose to disseminate knowledge gained by the experimental method, whether in bacteriology or physiology or bio-chemistry, in so far as it may contribute to our understanding of the nature of disease. In this way the journal will undoubtedly meet the needs of research workers, whether in the laboratory or at the bedside. We understand that a happy coöperation with workers in overseas dominions will be kept up in the journal, to which we wish a successful career.

LOCAL OPTION IN INSURANCE PRACTICE.

THERE has been an interesting side-current in the discussion on the new terms of service under the Insurance Acts. In the reports received from a number of areas may be noted a great measure of unanimity between the professional committees on the one side and the insurance committees on the other. In many areas these committees have agreed upon certain modifications in the regulations, especially in regard to the schemes for remuneration and allocation. But the professional representatives, who have been successful in carrying their lay committees with them, are naturally disappointed when they find that the Ministry of Health is unable to accept their modifications because they contravene either the Statutes or the regulations which have been framed under them.

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[1] THE LANCET, Jan. 31st, 1920, p. 270.

This is absolutely no reproach to the Ministry, but none the less local negotiations have been felt to be useless. In certain areas, and notably in Sheffield, protest has been made over the loss of time and trouble involved in the refusal of the central department to sanction arrangements agreeable to both the contracting parties on the spot, but the situation was not clearly understood. We believe that it would be well for the medical profession to realise that, for the present at least, agreements between panel and insurance committees can only deal with modifications in detail of the administrative machinery, or, in other words, with the methods of carrying out the settled principles underlying the regulations. It is true that alterations in the regulations themselves have been made upon the suggestion of local medical committees, and secured in the conferences between the Ministry of Health and the Insurance Acts Committee. But local committees are apt to be late in the field, and to forget that their opportunity for altering the regulations in principle lasted only so long as these were in draft, and that the mechanism for doing so was provided by the resolutions passed in the Conference of Local Medical and Panel Committees. We regard the rapprochement between the local medical and lay interests, as evinced at Sheffield and elsewhere, as of happy augury for the smooth and effective working of medical benefit under the Insurance Acts. But these protagonists of the Whitley principle must bear in mind that their brethren in general, both medical and lay, have not been willing to give up the carnal weapon of collective bargaining; and they cannot have it both ways. But their time will come, for the whole future of medicine is bound up with smooth and efficient local working, and the Ministry of Health in taking over the Local Government Board had no quarrel with the local government principle.

THE DANGER OF PISTOLS.

AT a recent inquest in the Paddington coroner's court held upon the body of a demobilised officer, who had shot himself with a revolver in an hotel, the coroner said that he intended to call the attention of the authorities to the case. It showed, as he pointed out, that the deceased, though he had left the army and gone into civil employment, had been in the habit of carrying about with him the Service revolver with which he took his life. He had no gun licence and probably many others also carried pistols without licences in the same way. Everyone will agree with the coroner for Paddington that the carrying of pistols in the streets is a dangerous habit. Attention was called in THE LANCET frequently to the practice for many years before the war. The danger then arose chiefly from the selling to boys and irresponsible persons of cheap pistols, dangerous toys rather than military weapons, and the restrictions of the Pistols Act were designed to check, if possible, this unnecessary traffic. The situation is now different. There must be a great many weapons of a large type, taking service ammunition, in the possession of private individuals who may justly claim that crime is prevalent and that they are necessary for their protection—for example, in a country house or suburban villa. They would naturally point also to such cases as the recent murder of a policeman at Acton, and argue that the undiscovered murderer was able to carry a revolver without detection, and that the honest householder has a right to arm himself adequately even when out of doors as long as dangerous criminals carry weapons. The revolver has figured in a large number of crimes recently, including the holding up of banks and the murder of Mrs. Breaks. It is very desirable to restrict its use, as the coroner at Paddington urged, by strengthening the existing law, but it is a difficult thing to suggest precisely where the law should be strengthened. Severe penalties for carrying revolvers are urged by some, but the difficulty is to detect the persons who carry them before they are arrested for some crime, which in itself would enable them to be severely punished. The formalities attending the sale of revolvers only affect cases where a weapon is bought from a trader; it is impossible to restrict private transfers between individuals. Of course, if the criminal classes could be prevented from carrying firearms, the claim of other citizens to possess them for the defence of their persons and property would have less justification.

THE SELECTIONS FOR FELLOWSHIP OF THE ROYAL SOCIETY.

THE Council of the Royal Society decided recently to recommend for election into the Fellowship of the society the following 15 from the list of candidates:—

Dr. Edward Frankland Armstrong, Sir Jagadis Chunder Bose, Dr. Robert Broom, Professor Edward Provan Cathcart, Mr. Alfred Chaston Chapman, Dr. Arthur Price Chattock, Mr. Arthur William Hill, Dr. Cargill Gilston Knott, Professor Frederick Alexander Lindemann, Dr. Francis Hugh Adam Marshall, Dr. Thomas Ralph Merton, Dr. Robert Cyril Layton Perkins, Professor Henry Crozier Plummer, Professor Robert Robinson, and Professor John William Watson Stephens.

THE ANNUAL CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

THE Royal Institute of Public Health will hold the Annual Congress for 1920 in the University of Brussels from Wednesday, May 19th, to Monday, May 24th, 1920, on the invitation of Monsieur Adolphe Max, the Burgomaster of Brussels, and the rectors of the various Belgian universities, Viscount Sandhurst, Lord Chamberlain, presiding. The scientific work of the Congress will be carried on under the following sections:—

(1) State Medicine: President, the Right Hon. the Lord Dawson of Penn; (2) Naval, Military, Tropical, and Colonial: President, Surgeon Rear-Admiral Sir Robert Hill, Medical Director-General of the Royal Navy. (3) Municipal Hygiene: Sir Leslie Mackenzie, Member of the Scottish Board of Health. (4) Industrial Hygiene: President, Professor Sir Thomas Oliver. (5) Hygiene and Women's Work: President, Mrs. Mary Scharlieb. (6a) Bacteriology: President, Professor J. G. Adami, F.R.S., Vice-Chancellor of the University of Liverpool. (6b) Chemistry: President, Professor Benjamin Moore, F.R.S., Member of the Medical Research Committee.

During the Congress the Harben lectures of the institute will be delivered by Professor Maurice Nicolle, M.D., of the Pasteur Institute, Paris. An attractive programme of receptions, with visits to institutions of interest, and excursions to war centres and other places of note in Belgium, has been arranged, and delegates are being appointed by public health authorities. All interested in public health and national welfare questions may be admitted members of the Congress on application to the secretary. The arrangements for travelling and hotel accommodation are in the hands of Messrs. Thos. Cook and Son, Ludgate Circus, E.C., to whom application should be made.

A CENTRAL INSTITUTE FOR CHILD WELFARE.

A GREAT gift is announced in the sixth annual report of the Carnegie United Kingdom Trust, which has just appeared. The Central Council of Infant and Child Welfare, in which, through the efforts of Sir Arthur Stanley, chairman of the British Red Cross Society, eleven of the principal welfare societies in London are united, has qualified for the grant of £40,000 offered by the Carnegie Trustees for a central institute. Since the offer was originally made to the Council, the Red Cross Society has proposed to erect or purchase a large building to house (*a*) V.A.D. and Red Cross work; (*b*) a tuberculosis centre; (*c*) a college of nursing, besides the central welfare work; and the Carnegie Trustees have agreed to this proposal provided that a distinct wing is used for the child-welfare institute. No building has yet been acquired, but the Central Council has obtained temporary premises in which the work of the central institute is being commenced. Progress has been made in regard to a similar central institute in Edinburgh, but arrangements have not gone as far as in London. The report of the Carnegie Trust states that the policy of giving grants for Church organs is being discontinued, the trustees evidently being mindful of the injunction to them of the late founder: "Let my Trustees therefore ask themselves from time to time, from age to age, how they can best help man in his glorious ascent onward and upward, and to this end devote the fund."

THE UNIFICATION OF MEDICAL SERVICES IN RURAL AREAS.

IN his annual report for 1918 as county medical officer of health for Gloucestershire Dr. J. Middleton Martin summarises the scheme which has been adopted by that county council for the extension of medical services in the more rural districts. The venture has been referred to more than once in the medical press, and in view of its very practical bearing on the development of a unified service of medical treatment no excuse is necessary for re-sketching the outlines of the scheme. Almost every county with a considerable rural population has felt the difficulties and dangers involved in a possible multiplication of clinics, each for an individual purpose. In Gloucestershire the problem was made the more urgent by the quick succession of medical needs which came knocking at the county door for satisfaction—treatment of the tuberculous, of the venereal case, of the school child; the care of ex-Service men, and of mothers, infants, and young children. The county, after negotiations with the governing bodies of general and cottage hospitals and with other interested parties, has evolved a bold scheme for the provision of some 50 out-stations, or out-patient clinics. These will be somewhat on the lines of existing tuberculosis dispensaries, with consulting room, waiting room, and dressing rooms, and will be so distributed that one will be accessible within a radius of about three miles of every patient. At these clinics out-patient treatment will be available for all the special classes of persons for whom provision is now, or will in the future be, made out of the public purse. The usual medical attendants will be the local practitioners, assisted by the specialist staffs of the hospitals, while the specialist staffs of the county council, as regards tuberculosis and venereal disease, will also use the clinics for their particular work. The centres will be available for out-patient treatment under the Insurance Acts, while school cases will receive intermediate treatment by nurses, and ex-Service men by masseurs. The county council will provide and equip the clinics, which will, so far as possible, be in connexion with the cottage hospitals. The scheme will be controlled by a joint committee of the county council and of the general hospitals, and this committee will select the staffs for the various centres.

The growth and practical working of this scheme should be a matter of interest to the whole medical profession, and not least to the responsible officers of counties in which the same problem is becoming constantly more pressing. Those authorities who are slower in taking up the running will do well not to spoil the course for a later start by committing themselves meanwhile to bricks and mortar without very serious thought. The immediate moral appears to be, not to build premises for individual medical services if this can in any way be avoided. If premises cannot be rented, and building is after all found necessary, then it should be considered carefully whether the proposed site and type of building are such as will meet not only the immediate needs of the authority, but also the ultimate requirements of the neighbourhood; and, further, whether the site and the building are likely to commend themselves to the members of the medical profession who, it is to be hoped, will coöperate with the public authority in some such joint scheme as has been evolved in Gloucestershire.

MOTOR FUELS: MEDICAL AND PUBLIC CONSIDERATIONS.

THE report issued by the Board of Trade this week dealing with the costs, prices, and profits at all stages in respect of petrol, benzol, and other motor fuels obviously concerns the medical man. The report has been drawn up by a well-chosen subcommittee, and its conclusions call for very serious attention. At the outset it is shown that motor fuel is rapidly becoming of vital importance to practically every industry, not excluding agriculture, in all civilised countries. Therefore the concentration of control over the price and disposition of motor fuel in the hands of two enormously powerful capitalistic combines, practically world-wide in their scope, is regarded as constituting so dangerous a power, if it happens to be improperly used, that the governments of the world are asked imperatively to give attention to the situation. The demand for motor fuels tends to outstrip the world's present supply, and there is grave danger of a permanent famine in motor spirit, even at fabulous prices. We seem to be very slow in developing the possibilities of other fuels for use in motor service, and we are not surprised to find that the Committee is insistent that work should be begun at once to produce home or Empire fuel. Power alcohol, it concludes, is the only potentially unlimited source of supply, and it is urged that the Government should use every possible means to foster the production of power alcohol and should place no restriction on that production or the use of power alcohol in this country. Economic questions have also received careful attention, including the control of prices, and the views of the report here are eminently reasonable. The prohibition in regard to export of motor fuels is strongly recommended, and this applies particularly to benzol, and no motor spirit imported into this country should, in the opinion of the Committee, be allowed to be re-exported. The Committee asks that the findings of the report as to prices and export should be put into force forthwith. These conclusions will be received with satisfaction by the whole community, so important a place has motor fuel taken in the affairs of our daily life.

JOINT ILL IN FOALS.

AMONG other interesting matter the *Journal of Comparative Pathology and Therapeutics* for December, 1919, contains an account of experiments conducted at the Research Institute in Animal Pathology, Royal Veterinary College, London, into the cause and serum treatment of joint ill in foals. The investigations were conducted by Sir John McFadyean and Captain J. T. Edwards. The chief organisms found in bacterial and cultural examination of the diseased joints were streptococci, coliform bacilli, *Bacillus nephriditis* (Meyer), an interesting case of streptothrix, and three cases where the organisms were not of any named species. Seventy-two cases were examined during two years of research. The conclusion come to by the investigators is that vaccines and serums are not of any value in the treatment of pregnant mares who are likely to produce affected foals, nor are they preventive or curative of joint ill when applied to the foal itself. 253 cases were treated with the antistreptococcus serum and the authors base their conclusions on these results. Joint ill causes the death in early years of much valuable equine stock, and these investigations should lead to further understanding and research with regard to the disease. At present clean and hygienic stables, proper feeding of the dam, and careful attention to the umbilical cord of the foal at birth seem to be the best preventives. It is somewhat significant that common bred stock kept largely out of doors, or in stables with few animals in, suffer the least from outbreaks of joint ill.

DISABLED NURSES AND THEIR DEPENDANTS.

THE Special Grants Committee of the Ministry of Pensions has framed new regulations under which certain grants and allowances may be made in special cases to war disabled nurses and their dependants. These regulations, which take effect forthwith, apply to members of the Royal Naval Nursing Service and Reserve, Queen Alexandra's Imperial Nursing Service, the Army Nursing Service, the Territorial Force Nursing Service, and any other nursing service or reserve which is admissible under the Royal Warrant. The gist of the regulations is as follows:—

Nurses.—A supplementary or special allowance may be granted to a nurse where, in consequence of serious disablement arising from service during the war, she is unable to maintain herself in her pre-war standard of comfort, but the supplementary or special allowance together with any State pension which may be awarded shall not exceed £90 a year. In exceptional cases grants may be made to nurses to meet temporary distress or emergency. Recoverable advances may be made to nurses pending the receipt of moneys due, or which the Special Grants Committee considers may become due, from the State in respect of pension gratuity or other payment, provided that such advances shall only be made in cases of real necessity.

Dependants.—Where the parent, brother, or sister of a nurse is deprived by her death, in circumstances arising from service during the war, of any regular support which the parent, brother, or sister was receiving from the nurse before or during the war, or might reasonably have expected to receive from the nurse after the war, a supplementary or special allowance may be granted which, with any State pension which may have been awarded, shall not exceed the actual or prospective dependence and shall not exceed the total of £60 a year.

Children.—When a nurse, by reason of disablement arising from service during the war, is unable adequately to maintain her children, or where a nurse dies in consequence of war service, allowances for maintenance and education, not exceeding in amount those which may be paid under the Royal Warrant or the Special Grants Committee's Regulations for the maintenance and education of the children of a disabled or deceased officer, may be granted if the husband or widower of the nurse is deceased or if the Committee is satisfied that he cannot be expected to support the children.

Applications for allowances or grants should be headed "S.G.O." and addressed to the Secretary, Special Grants Committee, Officers' Branch, Millbank House, Westminster, S.W.1.

Sir Archibald Garrod has been appointed Regius Professor of Medicine at the University of Oxford.

THE Home Secretary has appointed Dr. William C. Sullivan, Superintendent of Rampton Criminal Lunatic Asylum, to the office of Superintendent of Broadmoor Asylum, vacant by the retirement of Sir John Baker.

AT Oxford, by a vote in Convocation of 434 to 359 on Tuesday last, Greek ceased to be a compulsory subject.

WE regret to record the death on March 2nd of Dr. Samuel West, consulting physician to St. Bartholomew's Hospital, the Royal Free Hospital, and King Edward VII. Sanatorium. His unremitting services as president of the Royal Medical Benevolent Fund will long be gratefully recalled by the less fortunate members of his profession.

WE note elsewhere the appointment of Dr. James McIntosh, Grocer's Company Research Scholar and Carnegie Fellow in Pathology, to the vacant Chair of Pathology at the Middlesex Hospital Medical School, and of Mr. Sidney Russ, D.Sc., to occupy the new Chair of Physics endowed by Messrs. S. B. and J. B. Joel. Last week the University of London acceded to the institution of a Chair of Radiology at the same school.

THE lectures and practical instruction for a diploma in Psychological Medicine at the Maudsley Hospital, Denmark Hill, having now been arranged, Sir Frederick Mott will be glad to meet medical officers of asylums and practitioners desirous of attending the course, on Wednesday, March 10th, at 2 P.M., at the hospital, in order to settle the days and hours to suit the convenience of the greatest number.

TUBERCULOSIS.

Government Attitude to the After-care of the Tuberculous.

IN a memorandum published in the *Times* of Feb. 2nd and signed, among many others, by Sir Clifford Allbutt and Dr. F. W. Burton-Fanning, it is pointed out that the recommendations of the Departmental Committee's report on tuberculous soldiers have not been acted on by the Government in respect of the third and most important recommendation. It appears that the Government has promised Treasury assistance with regard to the first two recommendations (increased capital grants to sanatoriums and training departments in colonies), but so far it has given no promise of financial assistance for permanent settlements. The Papworth authorities, for example, can get no Treasury help for their village settlement. The signatories of this memorandum urge the Government to promote the permanent village settlement, towards the costs of which the Committee recommended an outlay of a million pounds.

Establishment of a Farm Colony near Edinburgh.

At the annual general meeting of the contributors to the Royal Victoria Hospital Tuberculosis Trust Mr. Charles Cook, the chairman, pointed out that the growing tendency to regard tuberculosis as a problem of infant infection had led the Trust to plan their future operations with special reference (1) to the care and treatment of the manifestations of tuberculosis in whatever organ and at whatever age they occurred, and (2) to investigate and develop accredited lines of treatment of every form of tuberculosis. The application of these principles had resulted in the decision to establish a farm colony on national lines, to be available for the prolonged care and treatment of all forms of curable tuberculosis, precedence to be given to soldiers, sailors, war workers, and their relatives. The Trust's committee had selected Southfield, two miles from Edinburgh, for the purposes of a sanatorium, training colony, and school. The National Association for the Prevention of Tuberculosis had promised £4000 towards the purchase price of £9400, and £300 per annum for three years towards maintenance. With a little rearrangement accommodation could be provided for approximately 40 patients. Speaking at this meeting, Sir Arthur Stanley, chairman of the British Red Cross Society, discussed the larger outlook in the campaign against tuberculosis, and outlined a scheme for creating an international clearing house for ideas and experiences at Geneva, under the auspices of the Red Cross. He hoped that every country would be represented, and the fullest possible information be available as to the tuberculosis work in every part of the world.

A New Sanatorium for North Riding.

The North Riding County Council recently considered a recommendation of the public health committee with regard to the establishment at Morris Grange of a sanatorium with 155 beds. The estimated cost of this scheme was £70,000, exclusive of the water-supply, and the cost to the Riding would probably be about £42,000. The committee's scheme entailed a capital expenditure of £79,640, and an annual expenditure of £32,130. Pending the organisation of this scheme an interim scheme, involving a capital outlay of £1460 and an annual outlay of £5150, should be recommended. The discussion which took place resolved itself largely into a controversy as to the merits of sanatorium treatment in general. It was stated as the opinion of the greatest medical experts that "nothing was worse for consumptives than sanatorium treatment." Also that "the best medical opinion was in favour of sanatorium treatment." The committee's recommendations were adopted.

Tuberculosis in Portsmouth.

Dr. J. Fairley, chief tuberculosis officer and medical adviser to the Portsmouth Insurance Committee, has recently issued a report, dealing with the treatment of tuberculosis under the National Health Insurance Act in the Portsmouth area. In 1914 the total number of patients applying for treatment was 157. Of these only 32·5 per cent. could be traced as living. It was argued from these and other figures that sanatorium benefit was a failure, as judged by ultimate results. Dr. Fairley suggests that the segregation of infectious cases is the only way to control the disease. The Government should provide some half-dozen districts, each of about 20 square miles, where settlements could be established on a large scale. The scheme should first be voluntary, but should ultimately be administered with compulsory powers. Once admitted, a patient would remain till certified free from infection; then he could take his discharge if he wished to, but only on probation, and subject to periodic boarding. Families would be admitted conditionally, and the community would run itself, its local government, its marriage laws, its medical treatment, manufactures, and even trade unions. The community would be productive, though not entirely self-supporting.

Derbyshire's New Sanatorium.

At the quarterly meeting of the Derbyshire County Council the county medical officer of health reported on the proposal to acquire Bretby Hall as a sanatorium. The purchase price of the hall and outbuildings, with about 150 acres of land, and cottages thereon, would be £15,000, and the cost of adaptation £30,000. As £27,000, representing three-fifths of the total, would be paid by the Government, the balance charged to the tuberculosis account would be £18,000, and from this £9000 could be deducted as the Government's share of the outlay. The net capital cost to the county would, therefore, be only £9000.

Birmingham Inquiry into Sanatorium Treatment.

The results of sanatorium treatment in Birmingham are to be inquired into by a special committee, and a report will be presented to the Insurance Committee. It is realised in Birmingham that an important cause of failure in the administration of sanatorium benefit is the lack of provision for the dependents of insured persons undergoing treatment.

"The Harts," a house which stands in 20 acres at Woodford, Essex, has recently been purchased by the East Ham Council, and will be converted into a sanatorium with about 100 beds.

THE BRITISH INDUSTRIES FAIR.

THERE was truly a wealth of British-made goods on the spacious main floor of the Crystal Palace at the British Industries Fair held there from Feb. 23rd to March 5th under the auspices of the Board of Trade. The exhibition presented a most animated scene, and the support which it has received looks well for the future of British energy in many departments of trade and industry. Pottery and glass proved a beautiful demonstration, and impressive also was the display of scientific instruments, optical goods, spectacle ware, and photographic requisites. Many trades were admirably represented by their specimens of output—pianos, cutlery, toys, leather, book-binding, upholstery—all making for British industrial advance. The catalogue presented by the Board of Trade extended to no less than 611 pages. Many leading drug houses and surgical and scientific instrument makers were to the front. The stalls were for the most part artistically arranged. Of course, the primary object of the fair was business, and to bring into light the national power of effective productiveness. The medical visitor, however, must have found considerable interest in the things which concern his calling. We mention a few examples.

Drugs.

Messrs. Allen and Hanburys showed a good selection of their special products of "chrismol" for constipation and colloids, including "azoules," "kapsols," elixirs, and tablets. They made a prominent feature of preparations of internal secretions and other organo-therapeutic products, for example, of thyroid preparations, and especially of "polyglandin" preparations advocated in neurasthenia, melancholia, and sex neuroses, chronic toxæmia, and uterine disorders. Their neodiarsenol outfit for the preparation of injections of 914 (neosalvarsan) was on view.

Messrs. Burroughs, Wellcome, and Co. at their stand made a special feature of large samples of "kharsivan" and "neokharsivan" in addition to various "tabloid" products. Among other substances we may call attention to "iodicin" to replace with certain therapeutic advantages potassium iodide (3 to 9 gr. instead of potassium iodide 5 to 20 gr.). This firm also showed a range of tubes exhibiting the thyroid gland as taken from the sheep, its desiccation, powdering, and tabloid states.

The Standard Tablet Co., of Hove, showed a series of well-prepared medicaments of standard quality, including "thyroxine" tablets. Some prominence was given to the "marvellous" properties of the thyroid gland, owing, no doubt, to the sensational statements made in the press as to this substance proving to be a sort of elixir of life. (The misleading character of the deductions made in certain lay papers is elsewhere referred to.)

Messrs. Evans, Sons, Lescher, and Webb on their stand called special attention to the Liverpool virus for killing rats, and showed two rats as large as fat rabbits, one the bamboo rat of Malacca and the other a Brazilian species. The virus, it is claimed, is harmless to other domestic animals, and the rats must come into the open air to get water and to die. This firm also exhibited Evans's lysol in a prominent position.

Among other houses Messrs. Thomas Christy and Co. and Holt, Thompson, and Co., of Liverpool, had a good show of drugs and fine chemicals. The Western Dental Manufacturing Company had a fine display of dental requisites and appliances; and Messrs. Charles Salmon and Sons made a display of artificial limbs.

Scientific Instruments.

Scientific instruments were shown by Messrs. Baird and Tatlock, James Pitkin and Co., Negretti and Zambra, Newton and Wright, W. Watson and Sons, and Perken, Son, and Co., and Messrs. Raphaels, Ltd., made a special show of the "Maddox" near vision phorometer, invented by Dr. Maddox, of Bournemouth, as a standard test for muscular imbalances of the eye. Duroglass, Ltd. (selling agents, Baird and Tatlock), made a display of all kinds of chemical glassware, which they claimed was in every way equal to the German pre-war manufactures; and Messrs. Standley Belcher and Mason, Ltd., of Birmingham, offered a big show of British-made chemical apparatus respecting which they have issued an illustrated catalogue of 46 pages. They state that all their glassware is now made to conform to the verification tests of the National Physical Laboratory at Teddington. This laboratory was represented at a stall at which examples of standardisation of thermometers and scientific glass-measuring vessels could be inspected.

It seems likely enough that this well-organised and interesting collection of British manufactures will form the first of a series of annual events, for the executive state in the preface to the catalogue that this is known as the British Industries Fair and will *on this occasion* be held in the Crystal Palace. Recent events justify the scheme, and the support given must be gratifying to the authorities concerned, especially if they contemplate regular continuance of their activities.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Insanity and the War.

AT the annual meeting of the Royal Edinburgh Asylum, Morningside, the superintendent, Professor G. M. Robertson, referred to the effects of the war upon mental diseases. At the end of 1919 the total number of patients on the register was 993. During the year the admissions numbered 471. Alcoholic excess was believed to be the main cause of mental breakdown in about one-eighth of the male patients admitted, in spite of restrictions, high prices, and diluted alcohol. Among women the figure was only 1·2 per cent.—the lowest yet obtained. These figures, when compared with the numbers given by Sir Thomas Clouston in 1900 (1 in 3 in men and 14 per cent. in women), showed considerable improvement. The number of parochial patients admitted showed a great diminution. The war had been a cause of widespread anxiety. Although conscious of great relief, many had been surprised that they had experienced no sense of elation. The strain of the war lasted too long for a "rebound" to be enjoyed except by the young. Anxious emotion having accumulated and having lost its natural outlet in the war, now attached itself to anything else available, which then became the subject of over-anxious thoughts. We should be warned, said Professor Robertson, against pessimistic attitudes which had their origin in war. Others who had sustained bereavements during the war found these harder to bear now that the war was over, and many had sought solace in the study of spiritualism. Professor Robertson repeated his previous advice that it is dangerous for persons of neurotic temperament engaging in practical inquiries of a spiritualistic nature, adding that he did not consider Sir Conan Doyle or Sir Oliver Lodge safe judges, in view of their bereavements and unconscious desires. The phenomena in question occurred most frequently when there was disorganisation and dissociation of the mental functions. In toxic states, like delirium tremens, hallucinations of sight were easily aroused, and the patient was very open to suggestion. If, for example, such a patient were given a clean sheet of paper and told it was a letter from a friend he would sometimes start to read it, thus unconsciously providing his own news. Lameness and allied conditions, indigestion, and many other symptoms could result from a mental state, and be removable therefore through the action of the mind. One effect of the war experience was to create universal dissatisfaction with the legal and administrative arrangements for the care and treatment of the mentally afflicted. It emphasised also the need for the better provision of treatment for early cases. During the war thousands of soldiers received treatment for mental disorders without being certified lunatics, and similar facilities should obviously be accorded to civilians. It was believed that opportunity would be given to those who had the care of the insane to make suggestions in the recasting of the Lunacy Laws. The male nurses of the asylum had submitted a demand that female nurses should no longer be allowed to attend male patients, but he was of opinion that the employment of female nurses was beneficial to the male patients under their care.

Contravention of Venereal Diseases Act, 1917.

The trial took place in the High Court of Justiciary, Glasgow, on Feb. 24th, of a person styled "Professor" Eastburn, on a charge of contravening the Venereal Diseases Act, 1917. The "Professor's" fraudulent practice has on two occasions[1] been the subject of comment in your columns, where regret was expressed that no machinery apparently existed for his exposure and punishment. The case is of considerable interest as being the first tried in Scotland under the Act, and also for the light it throws upon the conduct and charges of unqualified practitioners. In the indictment there were 12 counts; objection to these was sustained in six, and the case proceeded upon the remainder. The accused pleaded not guilty. A seaman stated that he consulted him under the impression that he was a qualified medical man, and paid him a fee of £1. Accused undertook to cure him for £22, and for a further £34 to give him an additional course of treatment for nervousness. Another witness stated that he was charged £1 for consultation, and £50 for a course of treatment; this latter sum was paid by instalments, and after payment had been completed the "Professor" offered to give him another course of treatment for £38. In all he paid £88. Another stated that five or six years ago he was treated by Eastburn, and paid him between £40 and £50. Last September he again sought his advice because he was feeling run down. He was given pills "to build up his system," and told the course would last eight months. The medicine was said to be very expensive, and he was to be charged £265; this amount he paid in full. Similar evidence was given by other witnesses. The jury found the prisoner guilty on four of the counts, the verdict in the other two being "Not proven." Sentence of six months' imprisonment was passed, his lordship stating that he entirely agreed with the verdict, and that it was obvious that the accused contravened the Act for profit, well knowing its provisions, and that it was applicable to him.

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[1] THE LANCET, 1901, i., 223; 1906, ii., 1413.

Effects of the War on the Incidence of Scabies.

At the annual meeting of the Edinburgh Dispensary for Diseases of the Skin Dr. Robert McLaren submitted some interesting figures showing that at present the incidence of scabies among the civilian population has greatly increased, and that it bears a direct relationship to the recent war. Amongst soldiers in the field diseases of the skin occupied a very important position as a cause of casualty; although not responsible for mortality, they accounted for a very large number of admissions to hospital. Although noted in previous wars, they had never before assumed such importance, which was doubtless due to the unusual conditions of trench warfare, and the enormous number of men constituting a modern army. The majority of the diseases were due to animal parasites, and the figures of the dispensary showed that the number of cases of scabies was exceptionally high, and that the increase bore a distinct relationship to the war period. Of all cases treated at the dispensary between 1911 and 1915 scabies accounted for from 8 to 10 per cent. In 1916 the percentage increased to 15·3; in 1917 to 18; and in 1918 to 31. For the year under review, 1919, the proportion had remained much the same, the actual figure being 30. The increase had therefore been coincident with the war years, and became progressively greater as the new armies entered the field. Without doubt the civil population was now suffering dermatologically from the war, and it was remarkable in how many instances patients could attribute the disease to infection from some soldier member of the family. One of the most important services which the dispensary could render to the community at present was to assist in reducing the number of cases, and in supplying free treatment to those whose circumstances required it.

March 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Winding-up of the Fund for the Assistance of Medical Men.

SINCE the beginning of the war a subscription list has been open among French medical men, and their foreign colleagues on war service in the country, for the establishment of a fund to help doctors and their families who have suffered hardships due to the war. Many doctors evacuated from the invaded regions and taking refuge behind the line have thus been helped, also the dependants of medical men on military duties, and their widows and children. The subscriptions amounted in all to 1,323,000 francs. Large contributions were sent from abroad by doctors who had studied in France, and by medical associations and learned societies in North and South America. The war having ended, the disposal of the accumulated funds has just been placed under consideration. Only 320,000 francs have been used so far; this sum may appear small for five years of war. Benevolent societies in France too often seem to work on the principle of making inadequate doles, and of being more proud of the large sums they have in the bank than of the number of people they have helped. In all, during the last three years the fund spent about 7000 francs a month. A total of 470 people have been helped, among them 120 widows, one of whom had 11 children; 45 of these are now to receive a regular pension; others have been given temporary help. On March 1st, 1919, 350 doctors were on the list, of whom 325 lived in the invaded districts. Since then the names of 50 other doctors have been added, making in all 400. The administrative council propose to divide the remaining million into three parts: 700,000 francs will be devoted to help doctors in the liberated regions, and 100,000 francs have been put in reserve for future applicants because, though the list officially closed on Feb. 28th, requests from late comers are still arriving. The remaining 200,000 francs will serve to continue as long as possible the monthly allowances to widows, orphans, and old and sick people. It is hoped that 7000 francs a month will be available for the next two and a half years. The sums allocated in each case vary with the position of the recipient. A student, son of a doctor, receives only his college fees or his board and lodging; a widow with children receives more. The fund has also bought instruments for doctors of the liberated regions, taking advantage of the sale of surplus goods by the Service de Santé Militaire.

Microbic Clouds and Barometric Variations.

Dr. Roux, director of the Pasteur Institute, presented to the Academy of Science, on behalf of M. Trillat, his latest researches on the influence exercised by a low barometric pressure on clouds of microbes artificially produced in a closed space. While slow attenuation has only a very feeble action, rapid lowering of pressure has the effect of producing an increase of weight and, in consequence, almost instantaneous precipitation of microbic droplets. M. Trillat explains this phenomenon by the rôle of the infinitely small particles which form the nuclei of condensation of the water vapour, under the influence of the rapid lowering of pressure and the instantaneous cooling which results therefrom. According to thermodynamic laws this condensation ought to take place the more easily when the bacteria are very small, such as *B. influenzæ*. When the atmosphere of inhabited places, especially in the neighbourhood of sick people, is in this condition the barometric depression presumably counts among the factors favourable to a high bacterial concentration in the air, and consequently to epidemic infections. To sum up, the variations of barometric pressure, in collecting microbes on the ground or in facilitating their suspension in the air, exerts an influence on the bacterial composition of the air.

Fly Destruction.

MM. Boyer and Guyot, in the *Bulletin of the Academy of Medicine*, have recommended a mixture of castor oil and syrup for this purpose. Flies are killed in a few seconds. The result is even quicker if two drops of croton oil are added to 30 gr. of castor oil.

March 2nd.

URBAN VITAL STATISTICS.

(Week ended Feb. 28th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 15·9, 17·4, and 16·8 in the three preceding weeks, rose to 17·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 18·5, or 0·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 7·8 in West Bromwich, 8·3 in Gillingham, and 8·9 in Hornsey, to 26·4 in Aberdare, 27·2 in Liverpool, and 28·3 in Barnsley. The principal epidemic diseases caused 446 deaths, which corresponded to an annual rate of 1·4 per 1000, and comprised 184 from measles, 111 from whooping-cough, 72 from diphtheria, 61 from infantile diarrhœa, 11 from scarlet fever, and 7 from enteric fever. Measles caused a death-rate of 1·9 in Wigan, 2·0 in Barrow-in-Furness, 2·2 in Nottingham, 3·1 in Liverpool, and 5·4 in Barnsley; whooping-cough of 1·3 in Leeds, 1·4 in Southampton, and 1·8 in Rochdale; and diphtheria of 2·1 in Merthyr Tydfil. The deaths from influenza, which had increased from 66 to 161 in the four preceding weeks, further rose to 178, and included 38 in London, 25 in Birmingham, 19 in Liverpool, 12 in Leeds, and 6 each in Manchester and Hull. There were 2316 cases of scarlet fever, 2026 of diphtheria, and 4 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2415, 2000, and 2 respectively at the end of the previous week. The causes of 40 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham, 4 each in London and Liverpool, and 3 each in Leicester and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 14·7, 14·7, and 14·2 in the three preceding weeks, rose to 15·7 per 1000. The 316 deaths in Glasgow corresponded to an annual rate of 14·8 per 1000, and included 5 each from diphtheria and infantile diarrhœa, 3 from measles, and 2 from whooping-cough. The 93 deaths in Edinburgh were equal to a rate of 14·2 per 1000, and included 3 from diphtheria, 2 from measles, and 1 from scarlet fever.

Irish Towns.—The 174 deaths in Dublin corresponded to an annual rate of 21·9, or 5·4 per 1000 above that recorded in the previous week, and included 3 each from whooping-cough, diphtheria, and infantile diarrhœa, and 1 from measles. The 173 deaths in Belfast were equal to a rate of 21·8 per 1000, and included 4 from scarlet fever, 3 from whooping-cough, 2 from measles, and 1 each from enteric fever, diphtheria, and infantile diarrhœa.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieut-Col. L. Addams-Williams retires on retired pay.

Major and Bt. Lieut.-Col. R. A. Bryden relinquishes the temporary rank of Lieutenant-Colonel on ceasing to command a Medical Unit.

Major H. C. Sidgwick relinquishes the acting rank of Lieutenant-Colonel.

Major V. G. Johnson is placed temporarily on the half-pay list on account of ill-health.

Temp. Major J. C. Davies (Major, 4th R.W. Fus., T.F.) relinquishes his temporary commission on ceasing to be employed with the Field Ambulances of the 43rd Division.

C. S. Stolterfoth and S. F. Cheesman, late temporary Captains, to be temporary Captain.

Officers relinquishing their commissions:—Temporary Captains granted the rank of Major: H. H. Hepburn, H. H. Dunmere, B. Knowles, J. A. Paterson. Temporary Captains retaining the rank of Captain: C. D. Walker, L. R. Pickett, A. F. Palmer, W. J. Moloney, F. J. Pierce, E. W. Hall, L. J. O'Donovan, S. E. Holder, L. Gameson, M. Dobbs, D. H. Vickery, J. F. Wolfe, T. F. Shackleton, J. L. Smith, W. H. Stott, J. Scott, F. E. McGee, E. G. D. Milsom, G. M. Elliott, J. S. Byrne, E. H. Eastwood, N. Elrington. Temp. Lieut. D. I. McNaughton (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing their commissions:—D. C. Macdonald (granted the rank of Major), W. A. Hawes (retains the rank of Captain).

TERRITORIAL FORCE.

1st Southern General Hospital: Lieut.-Col. F. W. Ellis is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Lieut. A. G. Hewer to be Captain.

DEATHS IN THE SERVICES.

Lieut.-Col. John Henry Connel Whipple, Brigade Surgeon, A.M.S., retired, whose death in London on Feb. 20th is announced, was born on Dec. 31st, 1840. Entering St. George's Hospital in 1858, he was a contemporary of the late Mr. Pickering Pick and Dr. George Bernard Brodie. Col. Whipple took the M.R.C.S. Eng. in 1863 and the M.D. St. Andrews in 1862. He entered the Army Medical Service as assistant surgeon, staff, Sept. 30th, 1864; was appointed to the 21st Foot, May 16th, 1865; to the Coldstream Guards, Oct. 14th, 1868. His designation was altered to surgeon under Royal Warrant, March 1st, 1873. He was promoted surgeon-major, Grenadier Guardians, June 21st, 1885, and he retired from the Service with the rank of brigade-surgeon, August 19th, 1885. His designation of surgeon-major was altered to surgeon-lieutenant-colonel, Sept. 30th, 1894, under *London Gazette* notification of Oct. 17th, 1893. He served in Egypt, 1882, being present at Tel-el-Mahuta and Tel-el-Kebir, for which he had the medal with clasp and the Khedive's Star.

SPECIAL NEUROLOGICAL BOARD: PRESENTATION TO DR. W. A. BREND.—At a dinner held in the Great Central Hotel on Feb. 28th, Dr. Muirhead Martin in the chair, Dr. W. A. Brend was the recipient of a presentation consisting of an inscribed album, a silver rose-bowl, and a complete edition of Pepys's Diary, from over 60 past and present members of the Special Neurological Board and Clinic, Lancaster Gate. In making the presentation the chairman expressed the personal regard of the staff for Dr. Brend and their admiration of his work during the term of his presidency of the Board, now brought to a close by his appointment as Neurological D.C.M.S. for the London region. Dr. Brend, in reply, referred to the difficulties overcome before the Board attained its present influential position, and commented on the growing importance of its treatment branch and clinic in the development of psychotherapy. Dr. H. E. Davison, who succeeds to the post of President, was also a guest, and the other speakers were Drs. Charlton Briscoe, P. Bousfield, Danvers-Atkinson, Duncan, David Forsyth, Laing Gordon, and Travers-Smith. Mr. Cortlandt MacMahon with song, and Dr. Bowen with legerdemain, contributed to the programme of the entertainment.

Correspondence.

"Audi alteram partem."

THE MACKENZIE DAVIDSON MEMORIAL FUND.

To the Editor of THE LANCET.

SIR,—In surveying the devastation of five years of war, the nation is beginning to realise that some compensation may be found in the great stimulus which science has received. In no branch of science has this been more marked than in the field of radiology. In the diagnosis of disease and in the localisation of foreign bodies and bone injuries, radiology has played a vital part in the war and has given invaluable aid to the thousands of medical officers serving in the Forces. Remarkable as has been the development of radiology during the war, there is need for watchfulness lest full advantage be not taken of this stimulus and a period of reaction set in. There is pressing need of unremitting research. For this is required the provision of the best equipment possible, and also a more thorough and systematic scheme of teaching. The University of Cambridge is alive to these requirements, and a diploma in radiology and electrology at the University has been established. It is felt that the success of the step will be greatly assured if similar facilities are provided in London.

The death of Sir James Mackenzie Davidson in the prime of life has deprived radiology of one of its most distinguished exponents, whose name is specially associated with the development of radiographic technique, and particularly that of stereoscopic radiography, and with the introduction in this country of the method of the localisation of foreign bodies to which so many thousands of wounded men owe a deep debt of gratitude. Mackenzie Davidson's reputation was international. In this country he was rightly regarded as the head of his profession, and throughout his career he was unsparing in his efforts to raise the status of radiology among the sciences. He was especially insistent on the fundamental value of physics to radiology, particularly in regard to methods of measurement and the designing of equipment, subjects in which he was deeply interested up to the time of his death. Many in his own branch of the profession and a number of his friends and former patients, wishing to keep his memory green, have suggested that an appeal for funds should be made to found a Mackenzie Davidson Chair of Radiology at some University. Had Mackenzie Davidson lived he would have been among the first actively and generously to support the foundation of an institute for teaching and research in radiology, of which he was one of the earliest pioneers. If funds permit, it is hoped to found such an institute, to which possibly the chair could be attached, and of which the personnel and equipment would be beyond reproach. The benefit accruing to the British School of Radiology would be incalculable.

Till quite recently radiology has been regarded as a purely medical subject, but experimental research has shown that X rays may be profitably employed commercially in a number of industries. A new subject, radiometallography, has, for example, come into being, which offers great possibilities for examining the internal structure of metals and other materials. In this connexion radiology has already been turned to account by the steel manufacturer, the metallurgist, the engineer, the manufacturer of explosives, the aircraft constructor, the glass manufacturer, &c. The future of radiology will therefore lie, not only in the fight against disease and suffering, but also in the increase of commercial and industrial efficiency. But these new branches of radiology need much investigatory work before they can come fully into their own, and a Chair of Radiology associated with an X ray Institute should play a worthy part in such development.

It is in the belief that the scientific study and teaching of radiology will materially add to the well-being of the human race that the Committee venture to put forward this appeal for public support. Cheques should be made payable to the London Joint City and Midland Bank, crossed "& Co." and marked "The Mackenzie Davidson Memorial Fund," and sent to Dr. Robert Knox, 38, Harley-street, W. 1.

We are, Sir, yours faithfully,

A. BONAR LAW.
STANLEY BALDWIN.
J. J. THOMSON.
CLIFFORD ALLBUTT.
HUMPHRY D. ROLLESTON.
ALEXANDER OGSTON.
ROBERT HADFIEED.
ROBERT JONES.
J. Y. W. MACALISTER.
A. E. BARCLAY.
THOMAS J. HORDER.
N. S. FINZI.
G. HARRISON ORTON.
LENNOX WAINWRIGHT.
G. W. C. KAYE.
CHRISTOPHER ADDISON.
HARCOURT.
BERTRAND DAWSON.
W. D. COOLIDGE.
W. WATSON CHEYNE.
FREDERICK W. MOTT.
ANDERSON CRITCHETT.
ERNEST RUTHERFORD.
CHARLES H. WORDINGHAM.
ARCHIBALD D. REID.
C. THURSTAN HOLLAND.
SIDNEY RUSS.
W. IRONSIDE BRUCE.
GILBERT SCOTT.
ROBERT KNOX.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 21st is an annotation referring to blind masseurs. In the concluding paragraph thereof the opinion is expressed that a blinded masseur is incapable of giving effective remedial exercise and re-education treatment. To this opinion I wish to take very strong exception.

Considerable experience of blinded masseurs, who have also been trained to apply remedial exercises and to re-educate muscles, has convinced me that with careful and adequate preparation there is no reason whatever why a blind masseur or masseuse should not be able to apply any of the remedial exercises described by Kleen, Wide, or any other disciple of Ling (I write as one who was trained in this method of treatment in Stockholm). As a further proof, I may mention the fact that a member of the Association of Certificated Blind Masseurs passed the *full* examination conducted by the Incorporated Society of Trained Masseuses, qualifying for the certificate in "Swedish remedial exercises," and came out *first* in the list, although he was the only blind examinee! I consider that the paragraph referred to is calculated to affect adversely the prospects of a very deserving, enthusiastic, and capable band of workers, worthy of every possible help and fair treatment. I disagree entirely with the statement that "the blind administrator will be tempted to mete out to patients inferior treatment."

I state with conviction that if a blind masseur has been properly trained his treatment will *not* be inferior to that of an administrator gifted with sight.

I am, Sir, yours faithfully,
W. H. BROAD, M.D., Major, R.A.M.C.,
Lately O.I.C., Physical Treatment Department, Alder Hey Military Hospital.
Liverpool, Feb. 25th, 1920.

To the Editor of THE LANCET.

SIR,—Many thanks for your generous reference to the Association of Certificated Blind Masseurs in your issue of Feb. 21st. In regard to the final paragraph our men go through a specially prepared course of remedial exercises, but I quite agree with you that perfection in these is out of the reach of the blind practitioner.

I am, Sir, yours faithfully,
ARTHUR PEARSON,
Chairman, Blinded Soldiers' and Sailors' Care Committee.
Feb. 26th, 1920.

A PROFESSOR OF MILITARY MEDICAL HISTORY FOR OUR INDIAN WARS.

To the Editor of THE LANCET.

SIR,—A letter from Major-General Sir G. J. H. Evatt, A.M.S., in your issue of Jan. 31st, contains the valuable suggestion that a medical history of our Indian wars should be compiled. I am in entire agreement with him in this, as I have from time to time during the last quarter of a century experienced the greatest difficulty in collecting data on the subject. The same suggestion was put forward in my "Prevention of Disease and Inefficiency, with Special Reference to Indian Frontier Warfare," second edition, 1911. The records from which such a history could be compiled are scattered in a host of files in various departments in Simla and in the old files stored in Calcutta. Some useful information on the subject is also to be found in that delightful and charmingly written work, "History of the Indian Medical Service," two volumes, by Lieutenant-Colonel D. G. Crawford, I.M.S. (Thacker, Spink, and Co., Calcutta). For the compilation of such a history I would suggest that a senior major or junior lieutenant-colonel of the I.M.S. with a talent for collecting and arranging historical facts be selected, and placed on special duty for the purpose for six months.

I do not see my way to agreeing with General Evatt's further suggestion that "Military Medical History for our Indian Wars" should be made the subject of a professorship. I greatly doubt if the material available would be sufficiently entensive to justify this. It could, however, be most profitably included in some other professorship such as one dealing with medical organisation and administration in the field.

One earnestly hopes that in the near future a military medical school will be opened in India and that the matter under reference will receive due consideration in connexion with it.

I am, Sir, yours faithfully,
P. HEHIR,
Major-General, I.M.S.
London, March 1st, 1920.

ARTIFICIAL SPIROCHÆTES.

To the Editor of THE LANCET.

SIR,—It may interest those who have been concerned in recent years with the motile "streamers" which exude from red blood corpuscles and pretend they are spirochætes to know of an excellent description of them given by Dr. William Addison in the Transactions of the Microscopical Society of London, Vol. IX., 1861, p. 22, and Plate III. (in the *Quarterly Journal of Microscopical Science*, n.s., Vol. I.). His recipe for their production is to mix equal quantities of blood and a solution containing 1 gr. of common salt and ½ gr. of bicarbonate of soda in two fluid drachms of water added to half a fluid ounce of good sherry wine. Port wine containing a grain of sulphate of quinine in half a fluid ounce was also efficacious; so was a mixture of one part of fresh urine with two or three parts of sherry wine.

I am, Sir, yours faithfully,
A. E. BOYCOTT.
Radlett, Feb. 28th, 1920.

THE NEEDS OF AUSTRIAN MEDICAL FAMILIES.

To the Editor of THE LANCET.

SIR,—May I make an appeal through your columns for the families of physicians in Vienna, especially the lecturers in the University, who are not in private practice and are in dire distress? I have been aiding a number of friends and acquaintances for some time and have received to-day a letter from an eminent university professor, who is well known in England, in which he says: "Whatever you may have heard or read about our condition is far from exaggerated, but rather underestimates the state of our misery. The exchange alone (the English sovereign being formerly 24 crowns and now 950) is an indication of our extreme poverty. We hunger and freeze—for six weeks I have seen no coal—and it is a wonder that I can sometimes summon energy for work. Indeed, there is a danger of falling into a state of complete lethargy. ...... Being father of a family I venture to make use of your kind offer. If you could send us corned beef, flour, fat, and condensed milk, you would do us a great service."

Much is, no doubt, being done in England and elsewhere for the very poor of Vienna; but, Sir, let us not forget our own colleagues, some of them famous and too proud to disclose their misery. THE LANCET has been so often the leader in appeals for charity, and is so well known in Vienna, that I beg you will again take the initiative in an appeal to British medical men to help their colleagues in Vienna; and no doubt you know better than I do how to convey food in larger quantities over there and how to organise its distribution by some accredited representative.

May I add, since clothes cannot be bought in Vienna (a suit costing 20,000 crowns), that old garments in good condition might be sent as well, and that a present might be made of the more important new books and journals, for, as my correspondent writes: "I cannot buy any books now—English books will perhaps never more be attainable; to buy my own work would cost a fortune now."—I am, Sir, yours faithfully,

BERNARD HOLLANDER.

57, Wimpole-street, W., March 1st, 1920.

⁂ The distribution may safely be left in the hands of the Friends' Emergency and War Victims' Relief Committee (Hon. Sec., Miss A. Ruth Fry, 27, Chancery-lane, London, W.C. 2), which has a centre in Vienna, and finds itself at this moment seriously handicapped by lack of funds. In face of the present desperate situation this Committee is unable to continue its purchases of much-needed fats, milks, and other foods. Every report that reaches the Relief Committee serves but to confirm the impression that unless Austria, Poland, and Germany are speedily helped they will become victims of disease and famine likely to menace the whole life of Europe.—ED. L.

THE THERAPEUTIC USES OF OXYGEN.

To the Editor of THE LANCET.

SIR,—The discussion at the Royal Society of Medicine on the therapeutic use of oxygen, as reported in your columns of Feb. 7th, encourages me to put on record some observations I have made at different periods. As no exact apparatus was at my disposal, they must be looked upon in the light of clinical notes. First, many years ago my only source of supply was chlorate of potash and dioxide of manganese. This oxygen, of course, contained a trace of chlorine; in fact, its valuable properties were, as far as I was able to observe, largely dependent on that contamination. The effects of inhalation were hypnotic and stimulant. The latter quality was recognised in heart failure and during critical periods of disease, when this oxygen proved superior to alcohol, strychnine, or any of the ordinary stimulants. This "chlorine oxygen" also proved to be a hypnotic of considerable power, valuable in irritable heart with insufficient aeration. It was sufficiently powerful to make the attendant find it difficult to keep awake in such an atmosphere. The character of the sleep thus induced was peculiarly refreshing, similar to that obtained by driving in the open air. But this form of oxygen administration entailed two disadvantages: it leaves the mouth excessively dry and it discolours all the brasswork in the room.

The next time I took up the question with ordinary cylinder oxygen, which I call "dead oxygen," as it appeared to me to possess no other therapeutic value than the replacing the atmospheric and pulmonary deficiency. In the light of the discussion this was an error. Its greatest value in my hands was in certain cases of pneumonia, where the discoloration and dyspnœa were out of proportion to the other symptoms. For the practitioner away from the metropolis the form was convenient for administration during chloroform anæsthesia, conveyed through a tube under the mask.

The third variety of oxygen I experimented with therapeutically was obtained by dropping water on sodox, a form of dioxide of sodium. The result of administering oxygen in this form was a remarkable increase of metabolic action. "Sodium oxygen" is sufficiently active to necessitate careful regulation of the dose, and I found the best period of administration varied from two to 15 minutes. Advantage was derived by those cases in which improved metabolism was required, but in whom there was no deficiency in the elimination of waste products. If elimination was at fault the result was liable to prove injurious, by increasing the strain on excretory organisms already over-taxed. In sanatorium treatment of phthisis it proved of benefit in rendering the muscles more resilient and improving metabolic well-being. Latterly, those returning to work were put on five minutes' inhalation twice daily after meals. In hypersensitive cases and advanced phthisis inhalation proved deleterious, and in a few cases dangerous, producing depression and collapse.

Sodium oxygen is evidently more active than the other forms of oxygen, and will, I believe, be found to be a therapeutic agent of no mean order.

I am, Sir, yours faithfully,

Middlesbrough, Feb. 21st, 1920. HENRY A. ELLIS.

THE LATE COLONEL D. F. KEEGAN, I.M.S.

To the Editor of THE LANCET.

SIR,—The death of Colonel Keegan, reported a few days ago, removes one of the grandest figures in the history of the Indian Medical Service. If you named the three biggest surgeons which the Indian Medical Service has produced you must include the name of Keegan. The work he did will live for generations yet unborn, and he will be more honoured in his urn than he was when alive. This is the fate of all pioneers. Death removes them from the field of jealousy. When he was doing the spadework he had to fight the world, and he did it and established his case. We are all familiar with the work Keegan did in rhinoplasty and how he established the Indian operation as *the* operation for all time.

Keegan was a man with a fine imagination, a powerful and versatile intellect, and a strong character. He was a powerful, clear, and incisive though courteous controversialist. It is only a very able man in any public service who can go his own way and live as an official. Keegan did this. As a man he was one of the most kindhearted, the most generous, and the most genial of men. As a friend he was one of the few capable of that genuine friendship, as distinguished from fair-weather friendship, who would life itself resign at the sacred call of friendship. There was no self-interested trimming of wings for the weather about Keegan.

He did most of his service in Central India, where his fine personality was a political influence of the first magnitude. He died at the age of 80 years. The Government of India did not do themselves the honour of honouring him with a decoration. A man like Keegan does not require a decoration as his passport. He made no pretension to be what in popular language is called an "aristocrat." He belonged to a much higher order. He was an aristocrat of the moral code of the New Testament. He leaves a heritage to his son and his two daughters which "moths and rust do not corrupt, nor thieves break through nor steal."

I am, Sir, yours faithfully,

H. SMITH,

Amritsur, Jan. 31st, 1920. Lieutenant-Colonel, I.M.S.

PARA-SCARLET AND DENGUE FEVERS.

To the Editor of THE LANCET.

SIR,—In connexion with the correspondence in your columns on the question of para-scarlet fever perhaps the following case may be of interest. On Dec. 30th last I was called to see J. D., aged 14 years. She had taken ill the previous evening with headache—temperature 101° F. No vomiting or throat symptoms, but slight injection of the fauces. Headache persisted at intervals, and the temperature rose with morning remissions to 103·6°. The pulse did not exceed 108. On the evening of the second day there was slight evidence of a rash appearing on the back, pharyngitis, and the glands in the posterior triangle of the neck were enlarged. On the morning of the third day the rash had spread widely but never involved the front and upper portion of the chest. The rash was suspiciously like that of scarlet fever but for lack of uniformity, while small selected areas had the appearance of measles. The tongue was coated with a thick fur, but at no time could it be said to resemble the white or red strawberry.

There was marked hyperæmia of the nasal and pharyngeal mucous membranes, and epistaxis was repeated and troublesome. Headache and sleeplessness were the other chief features. The rash disappeared slowly, and on its disappearance fleeting pains in the joints were manifest. There was no albuminuria throughout. For ten days after the temperature had subsided there was a distinct feeling of malaise; then occurred a terminal rise with complete recovery. Four weeks from the date of onset desquamation was taking place on the palms of the hands. The only possible source of infection was a visit to the dentist, and recently it has transpired that he took to bed with a sharp attack of dengue fever immediately after J. D.'s visit.

I am, Sir, yours faithfully,

Khanka, Cairo, Feb. 16th, 1920. R. S. MILLER, M.D.

THE NOMENCLATURE OF TRYPANOSOMES: A CORRECTION.

To the Editor of THE LANCET.

SIR,—In my letter, as published in your issue of Feb. 21st, the word "*Trypocastellanelleæ*" is made to appear a little longer than it actually is; an additional "*an*" has crept into it inadvertently and in the wrong place. I remember that I found the word somewhat difficult to type, and I can only express my regret if I overlooked the mistake in the proof. The word is printed correctly, however, in the paragraph dealing particularly with it.

I will take this opportunity of adding that I hope it was quite clear that my letter was not intended as an argument either in favour of, or against, the actual classificatory changes proposed—whether generic or specific. My only object was to protest against a growing tendency to (as I regard it) travesty scientific nomenclature in connexion with the protozoa. Personally, I would much prefer to continue to call such well-known parasites as *Trypanosoma lewisi* and *T. gambiense* by these names than to have to think of them as *Lewisonella lewisi* and *Castellanella castellanii* respectively. It may be noted that Professor Minchin, although he recognised that *Babesia* was most probably the correct name, preferred to use *Piroplasma*, and in his book he put the latter name first in his account of this genus (p. 379). If *Babesia* has to stand, the result is, that of all the types into which this important group has been subdivided there is only the doubtful "*Anaplasma*" whose generic name gives us any idea of what kind of creature is concerned! Is not this an absurdity to be avoided in the future?

I am, Sir, yours faithfully,

Feb. 26th, 1920. H. M. WOODCOCK.

*** The error was in the original manuscript and remained uncorrected in the proof, an oversight committed as much by ourselves as by the author.—ED. L.

DEATH OF MR. C. GORDON HEWITT.—The death is announced of Charles Gordon Hewitt, D.Sc., F.R.S.C., Dominion Entomologist in Canada, and formerly lecturer in economic zoology in the University of Manchester. Mr. Hewitt was a recognised authority on the relation of houseflies to disease, his papers on this subject appearing in a book entitled "The House-Fly," published at the Cambridge University Press in 1914. During the war leaflets from his pen on the suppression of insects affecting troops were issued by the Canadian Department of Agriculture. His intimate entomological knowledge was placed freely at the service of humanity.

LIVERPOOL HOSPITAL FOR CANCER AND SKIN DISEASES.—The annual meeting of this hospital was held in the Town Hall on Feb. 27th. The report showed that the number of attendances recorded—37,610—was an increase of 7395 on the figures of the previous year. The average daily number of beds occupied by in-patients was 19 as compared with 14. Unfortunately the finances have not increased in a corresponding ratio, and the bank overdraft now stands at close on £4000. Like all other voluntary hospitals, this institution is suffering from the uncertainty which prevails as to the future of the voluntary principle. The Lord Mayor, who presided, expressed the hope that when the handsome sum, subscribed through the appeal of the late Lord Mayor, came to be divided, the strain on this hospital's funds would be considerably relieved.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Awards for Medical Discoveries.

A DEPUTATION from the Medical Committee of the House of Commons was received by Mr. BALFOUR (Lord President of the Council) on Tuesday, March 2nd, to urge upon the Government the establishment of a scheme of awards for medical and scientific discoveries. The suggestion put forward by the deputation was that £20,000 a year should be devoted to giving awards on similar lines to the Nobel prizes. Mr. BALFOUR received the proposal sympathetically, but pointed out that the settlement of who had actually made a particular discovery might be a difficult matter. In his view a better plan would be to place investigators in a more comfortable position for carrying out their research work.

The New Insurance Bill.

Although the text of the new National Health Insurance Bill has not yet been published, it is understood that the measure does not alter the general scope of medical benefit. Regulations, however, will follow as a result of it which will involve considerable modifications, the object of which is to improve the standard of medical services in connexion with insurance and to simplify its administration. Under the new regulations a limit is to be placed on the number of patients for whom a doctor can be responsible single-handed. A national maximum of 3000 has been fixed. The scope of free choice of doctor is to be enlarged, and there will be a half-yearly choice instead of a yearly choice. Obligations are to be laid on medical men to give emergency treatment and to provide proper surgery and waiting-room accommodation.

HOUSE OF COMMONS.

TUESDAY, FEB. 24TH.

Morphia, Morphia Salts, and Opium.

Mr. GILBERT asked the Parliamentary Secretary of the Board of Trade what was the total amount of morphia of British manufacture exported in the year 1919; what amount was exported to Japan and the United States respectively; whether the amounts included consignments by post; and what amount of opium was imported from India, Persia, and Turkey respectively into Great Britain during the year 1919.—Mr. BRIDGEMAN replied: The quantity of morphia and morphia salts registered as exported from the United Kingdom in the year 1919 was 322,970 oz., of which 121,474 oz. went to the United States of America. The records show that no morphia and morphia salts were exported to Japan. No particulars are available with regard to consignments by post. The quantities of opium registered as imported into the United Kingdom during the year 1919 from British India, Persia, and Turkey respectively were as follows: British India, 466,475 lb.; Persia, 30,558 lb.; European Turkey, 204,966 lb.; Asiatic Turkey, 133,157 lb.

Arsenical Treatment of Syphilis.

Mr. WATERSON asked the Minister of Health whether his attention had been drawn to the particulars as to a large number of deaths of soldiers after arsenical treatment for syphilis given in the paper read by Brevet-Colonel L. W. Harrison at a meeting of the British Medical Association in April, 1919; whether any special inquiries had been made into the cause of the deaths in question; and, if so, whether it was proposed to publish the results of the inquiries.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. A special committee appointed by the Medical Research Committee is inquiring inter alia into the toxic effects of arsenobenzol compounds, and I understand that the report of the Committee will be published in due course.

Mr. WATERSON asked the Minister of Health whether he had obtained a copy of the report of the commission which sat in Germany to inquire into the cause of toxic effects produced by the arsenical treatment of syphilis; and, if so, would he arrange for a translation or a résumé of it to be published.—Dr. ADDISON replied: I have taken steps to procure the report in question, and when I have received it I will consider what I can do to meet the request of the honourable Member.

Medical Officer's Demobilisation.

Mr. ROYCE asked the Secretary of State for War whether a cable was sent to Mesopotamia in May last ordering the demobilisation of Captain R. Gillespie Smith, Royal Army Medical Corps; and, if so, why was the order not carried out, and could he state if this officer was still in Mesopotamia.—Mr. CHURCHILL replied: The answer to the first part of the question is in the negative. A cablegram was, however, sent to the General Officer Commanding-in-Chief, Mesopotamia, asking that Captain Gillespie Smith should be sent home as soon as his services could be spared. According to the latest information in the Department he is still serving in Mesopotamia.

WEDNESDAY, FEB. 25TH.

Promotion in the Naval Medical Service.

Sir Watson Cheyne asked the First Lord of the Admiralty if he was aware that the proportion of surgeon captains to surgeon commanders was 1 to 19, of paymaster captains to paymaster commanders 1 to 11, of engineer captains to engineer commanders 1 to 9½, and of executive captains to executive commanders 5 to 9; whether he realised that this point was a serious matter for the Naval Medical Service, and might markedly increase the difficulty of recruiting for that service; whether any steps were being taken to remedy this disparity between the various branches of the service, and at least to place the surgeon captains on the same basis as the paymaster and engineer captains, and if so, when the result would be announced.—Dr. Macnamara (Parliamentary Secretary to the Admiralty) replied: The proportions are approximately as stated, though the proportion of surgeon captains to surgeon commanders is more correctly 1 to 17·4. At the present time, however, there is a considerable surplus in the number of surgeon commanders and a shortage in the junior ranks, so that normally the proportion of surgeon commanders would be very much less. The question of the number of higher ranks in the Naval Medical Service has been under consideration, and it has been decided to increase the number of surgeon rear-admirals to six and the number of surgeon captains to 16, excluding one officer specially promoted to that rank for services during the war. The number will be further considered as necessity arises, dependent in all cases on the requirements of the Naval Service. It may be pointed out that the conditions of service of medical officers in the Royal Navy have been very appreciably improved as a result of the recommendations of the Jerram-Halsey Committee, for not only have the rates of pay been increased, but the period of service for promotion from surgeon lieutenant to surgeon lieutenant-commander has been reduced from eight years to six years, and similarly that for promotion from surgeon lieutenant commander to surgeon commander, a reduction of four years in all. The earlier advancement to surgeon commander, thus authorised, has increase the apparent disparity of numbers in the higher ranks.

Deaths at Chinley Isolation Hospital.

Mr. Robert Young asked the Minister of Health if he was aware that the death-rate at the Chinley Isolation Hospital was 55 per cent. during the period Nov. 24th to 29th, 1919; what was the reason why this high death-rate took place; whether three boys, aged 9, 7, and 5 years respectively, died within the dates referred to, all members of the same family, after antitoxin treatment; whether the cause of these deaths had been investigated, and the antitoxin in use at the time stated impounded for analysis as to its purity and with what result; whether two of the cases referred to were out of bed one hour before death; and whether the third case, admitted for observation only, died from an overdose of antitoxin.—Dr. Addison replied: I am informed that during the periods mentioned the number of patients in the Chinley Isolation Hospital was 24, of whom 12 were cases of diphtheria, and that during the same period the number of deaths in the hospital was four, in each case from diphtheria. These fatal cases included the three boys referred to by the honourable Member. The facts as to these cases, together with the local incidence of diphtheria in the neighbourhood, have been fully investigated by one of the medical officers, as well as by the county and local medical officers. They are of opinion that the high mortality was due to the malignant character of the disease and to the fact that those in charge of the cases before admission to the hospital had failed to administer diphtheria antitoxin. When the cases were admitted to hospital they were all in an advanced stage of the disease; and although antitoxin was at once administered it was then too late to stay the progress of the disease. I am satisfied on the evidence that the administration of antitoxin was in no way prejudicial or related to the fatal result, and that the treatment given to the cases after admission to hospital was in all respects adequate.

Hospitality for Starving Children from Central Europe.

Colonel Burn asked the Minister of Health if he was aware that the Bradford council had rejected the motion for extending hospitality to the starving children of Central Europe; and what steps did he intend to take in the event of other towns in this country expressing willingness to receive alien children from the countries of our late enemies; (2) whether any consideration had been given to this proposal from the point of view of the public health and possible contagion.

Lieutenant-Commander Kenworthy: May I, before the question is answered, ask the right honourable gentleman whether the official religion of this country is still Christianity?

Dr. Addison replied: That has nothing to do with my answer. With regard to the Bradford council, I have no information to the effect suggested in the question. Proposals of the kind referred to by the honourable Member have been brought to the attention of the Government and have been discussed between the Foreign Office, the Home Office, and the Ministry of Health. The necessity of safeguarding the health of the people in this country in the event of any such proposals being sanctioned and carried out has been very closely considered and the requisite steps thought out.

Colonel Burn: Does not my right honourable friend think it inadvisable that the children of enemy aliens should be brought to this country, and does he not think that any money required for their assistance should be spent or disbursed in their own country?—Dr. Addison: I cannot say as to that. I have to consider whether adequate steps are taken to safeguard the health of the community, and that I have done.

Mr. Ratcliffe: Is the right honourable gentleman aware that the Bradford corporation, whilst refusing to accept 1000 children to be domiciled in Bradford, voted £1000 and opened a public subscription to be sent for the relief of the children in the country in which they are living, but that the question is not a fair suggestion of what has been done by the Bradford corporation?—Dr. Addison: I believe that is so.

THURSDAY, FEB. 26TH.

Health Measures at British Ports.

Lieutenant-Colonel Raw asked the Minister of Health whether his attention had been drawn to the arrival of a ship at a British port recently with cases of small-pox on board; and whether any steps were taken to deal specially with the danger of the introduction of infectious diseases through the ports of the country.—Dr. Addison replied: My attention has been drawn to the case to which presumably my honourable and gallant friend refers. Like all similar cases, it was made a matter of special inquiry by one of the medical officers of the Ministry. I am giving detailed consideration to the danger of the introduction of infectious diseases through the ports of this country in view of the widespread prevalence of small-pox, typhus, and other epidemic diseases on the continent and abroad. Special arrangements have been made with the Foreign Office and the Colonial Office whereby periodical and continuous information is received and appropriate action taken. A weekly bulletin is forwarded from the Ministry to the medical officers of health of the port sanitary authorities in this country, and special bulletins as occasion requires. I have been in communication with the port sanitary authorities on the whole subject, and I am convinced that the powers at present possessed by port sanitary authorities are inadequate. Regulations will shortly be issued with the object of obtaining a greater security against the introduction of infectious diseases into this country from abroad and of increasing the efficiency of port sanitary administration, and arrangements have been made with the Treasury for the provision of special financial assistance.

The Assessment of Disability.

Captain Loseby asked the Pensions Minister if he would make a statement clearly defining the practice of his department in regard to the assessment of pensions in cases in which it would appear that part of the disability was attributable and part was not attributable to military service.—Sir L. Worthington-Evans: If the honourable and gallant Member is referring to a man suffering from two disabilities, one of which is attributable to, or aggravated by, service and the other not so attributable or aggravated, pension is awarded in respect of that disability which is connected either wholly or in part with military service. In the case where a man who suffered from a disability prior to enlistment and on or after discharge is found to be suffering from the same disability in an aggravated form, the increase in disablement is considered attributable to military service and pension is assessed on the total extent of the disability.

Woman Representative for Welsh Board of Health.

Mr. Alfred T. Davies asked the Minister of Health whether the Welsh Board of Health included a woman representative, and if not, whether he intended to appoint such a representative, having regard to the fact that the Welsh Insurance Commissioners included a woman member.—Dr. Addison replied: The answer to the first part of the question is in the negative. An increase in the present composition of the Welsh Board of Health is just now under consideration, but I am not yet in a position to make a statement. The particular point referred to by the honourable Member will be borne in mind.

Influenza Inoculation in the Army.

Mr. LUNN asked the Secretary for War whether at any time during 1918 and 1919 consignments of assorted anti-influenza vaccines, each labelled distinctively, were sent to army medical officers in charge of troops, with instructions to inoculate batches of soldiers with the different vaccines and to note carefully the effect of each vaccine as regards preventing influenza; whether instructions were sent to medical officers that they should inform the soldiers that the inoculation was entirely voluntary; and whether some of the medical officers who made the trial found that the vaccines had no effect at all in preventing influenza.—Mr. CHURCHILL replied: The honourable Member is misinformed; no consignments of assorted anti-influenza vaccines have been issued to army medical officers. Anti-influenza vaccine of a composition decided upon by a conference of specialists, and prepared at the Royal Army Medical College, has been issued to commands. Prior to this a limited amount of vaccine prepared at Guy's Hospital was used in one command. These vaccines were only used in cases of men who volunteered to be inoculated. Medical officers were instructed to prepare statistical returns showing the incidence, deaths, and occurrence of pulmonary complications amongst inoculated and uninoculated persons. As regards the second part of the question, all inoculations with vaccines in the British Army are, and have always been, voluntary, and no special mention of the point was made when instructions were issued as to the use of this vaccine. As regards the last part, the general opinion of medical officers has been that the vaccine affords some protection against attack and distinctly lessens the incidence and severity of pulmonary complications.

MONDAY, MARCH 1ST.

Medical Officers in India.

Lieutenant-Colonel BUCKLEY asked the Secretary for War if he was aware that many officers of the Royal Army Medical Corps serving in India had been in that country for nine or ten years and appeared to have little prospect of relief; and if he would state what steps were being taken to expedite their relief.—Mr. CHURCHILL replied: There are 41 officers of the Royal Army Medical Corps still in India whose tour of service has expired, and every effort is being made to release them as other Regular officers become available. Twenty-four officers are under orders to proceed to India, and these will be employed for the relief of tour-expired officers and towards completing the permanent establishment of the Royal Army Medical Corps in India.

Lieutenant-Colonel BUCKLEY asked the Secretary for War if officers of the Royal Army Medical Corps serving in India were precluded from resigning their commissions; and, if so, what was the reason for this.—Mr. CHURCHILL replied: Instructions have been issued that Regular Royal Army Medical Corps officers serving in India cannot be permitted to resign their commissions until the statutory date of the termination of the war. This step was rendered necessary by the fact that India is much below peace establishment and that at present it is not possible to provide Regular Army Medical Corps officers to replace those who were desirous of relinquishing their commissions.

Small-pox in Germany.

Mr. LUNN asked the Minister of Health whether he had received any information as to the prevalence of small-pox in Germany during the years 1918 and 1919; and, if so, whether he could give the number of cases and deaths occurring and the districts in which they were notified, with any other information that was in his possession.—Dr. ADDISON replied: There had been an epidemic of small-pox in Germany during 1917, comprising some 3000 cases, the origin of which was traced to infection brought into Germany by Russian prisoners. During 1918 cases continued to occur, amounting, so far as our information goes, to about 300 in number. In December of that year there was a recrudescence of the disease, and up to the end of 1919 about 4344 cases had been reported; of this number some 800 occurred in Dresden and about 164 at Dantzig. Among the places in which small-pox was prevalent in 1919 were: Oppeln (311 cases), Konigsberg (88), Stettin (24), Breslau (58), Berlin (25), and Cassel (34), but the number of deaths has not yet been reported. In 1917 and 1918 there were many foreigners in Germany—prisoners, refugees, and others, including Russians, Poles, Austrians, Italians, Belgians, and French; and it is more than probable that many of these foreigners were unprotected by vaccination. The information that has reached us does not include separate statistics as to the number of Germans and foreigners respectively who were attacked during 1918 and 1919, or the number of deaths in each category.

National Health Insurance Bill.

Dr. ADDISON presented a Bill "to amend the Acts relating to National Health Insurance."

TUESDAY, MARCH 2ND.

Discontent among R.A.M.C. Officers.

Sir WATSON CHEYNE asked the Secretary for War if he was aware of the grave discontent among the Special Reserve and Territorial Force officers of the Royal Army Medical Corps in Mesopotamia owing to the fact that they could not get leave, some having spent two, or even three, hot seasons in Mesopotamia without leave; and, especially in view of the prospect of having to spend another hot season there, would he take steps to give relief to these men.—Mr. CHURCHILL replied: Many of these officers, in common with those of the Regular Royal Army Medical Corps and the Indian Medical Service, have leave due to them. This is a matter for the local military authorities, but I would remind my honourable and learned friend that the granting of leave must necessarily interfere with the release of officers eligible for demobilisation. Regular officers of the Royal Army Medical Corps are being sent out as they become available to replace officers of the Special Reserve and Territorial Force whose demobilisation has been applied for.

Medical News.

UNIVERSITY OF LONDON.—The Senate has appointed Dr. James McIntosh to the University chair of pathology at Middlesex Hospital Medical School, and Dr. Sidney Russ to be the first incumbent of the Joel chair of physics. The Senate has resolved to organise a course of lectures on mental deficiency for medical officers of local authorities and institutions and medical men engaged in work for defectives.

Chair of Radiology tenable at the Middlesex Hospital Medical School.—On the tragic death of Mr. C. R. C. Lyster the authorities of Middlesex Hospital and Medical School were faced with the immediate necessity of appointing an officer in charge of the X ray and electro-therapeutic department. It had been felt for some time that if real progress was to be made in radiology in this country, it was necessary to ensure that an expert in this branch of medicine should be able to devote his whole time to the charge of this department of the hospital and to the work of education and research. With this object in view, the hospital authorities approached the University of London to secure coöperation in achieving their object by giving high academic position to any whole-time officer appointed. At a meeting of the Senate on Feb. 25th a resolution was passed instituting a University Chair of Radiology tenable at the school. Opportunities for the investigation of the possibilities of radiotherapy at the Middlesex Hospital are very great. Over 100 beds are constantly occupied with cases of cancer; in the physics department there are special laboratories for the investigation of physical and pathological problems; also a large supply of radium has been obtained. Intimate connexion will be maintained between the new department and that of physics, and from this association progress is anticipated in the treatment and cure of cancer. The department will be of service to men proposing to specialise in radiology, a branch of medicine which has lately been recognised by Cambridge University as worthy of a diploma. The maintenance of the new professorship will be a financial strain for the institution to bear, but it is hoped that some assistance may be obtained by gifts for the purpose of endowment.

UNIVERSITY OF BELFAST.—In consequence of the great development of the department of anatomy, it has been decided to establish a class in human embryology, to abolish the class of elementary anatomy, and substitute a system of tutorial instruction, arranged in connexion with the practical class, and to establish a revision class. New regulations for the department of applied anatomy have also been sanctioned.

THE Middlesex Hospital has benefited to the extent of £5000 by the exhibition of nurseries at the Ideal Homes Exhibition.

PURSES FOR THE LONDON FEVER HOSPITAL.—At a reception held at the Mansion House on Feb. 26th Princess Mary received purses on behalf of the London Fever Hospital, including a donation of £1000 from Lady Strathcona. This hospital, which has 178 beds, is the only one in London other than the institutions supported by the rates to which infectious cases can be sent, and is in great danger of having to close its wards owing to want of funds. As Lord Balfour of Burleigh, the president of the hospital, pointed out, a subscription to the institution is a form of insurance against infectious disease, and a governor is entitled to free treatment for any member of his household. During the war 500 officers, nurses, and soldiers were treated in the London Fever Hospital.

Oxford Ophthalmological Congress.—The next meeting of the Oxford Ophthalmological Congress will be held on Thursday and Friday, July 15th and 16th, at Keble College, Oxford. A discussion on "Perimetric Methods" will be opened by Dr. Luther C. Peter, of Philadelphia, U.S.A. Members intending to take part in the discussion or able to contribute cases, specimens, new operations, or novelties of any kind are requested to send in their names to the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton. The Doyne Memorial lecture will be delivered on July 16th by Mr. F. Richardson Cross on "The Nerve Paths and Centres Concerned with Sight."

Residential Tuberculosis Treatment: Conference of Medical Officers.—A representative Conference of Medical Superintendents of Sanatoriums, Training Colonies, and Hospitals for Tuberculosis was held at 122, Harley-street, London, W., on Feb. 23rd. It was unanimously decided to form a new society, which should have as its aim the improvement of the methods of administration, diagnosis, and treatment of tuberculosis in residential institutions. Membership is limited to medical men and women whose duties lie mainly in the medical charge of residential institutions for the treatment of tuberculosis. "Associate members" may be elected from among those who have formerly held such posts, and from junior officers at present at such institutions. The annual subscription was fixed at 10*s*. 6*d*. for members and 5*s*. for associate members. It is intended to hold quarterly meetings, and to circulate among members full reports of the conclusions and recommendations of the society and its committees. Office bearers were elected as follows: Dr. Jane Walker (President), Dr. James Watt (secretary and treasurer); executive committee: Drs. Esther Carling, Elwin H. T. Nash, Marcus Paterson, A. Niven Robertson, P. C. Varrier-Jones, R. C. Wingfield, George Jones, and Sir Henry Gauvain. Small committees were appointed to collect information and to formulate recommendations, for report to the next meeting of the society to be held in May, on various questions relating to the standards of treatment and administration in institutions. Among these are the comparison of scales of dietary, the standards of medical and nursing staff, the methods of dealing with advanced and dying cases, the coördination of statistics, the relative values of different methods of treatment, and the construction and equipment of institutions.

Central Midwives Board.—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Feb. 19th, with Sir Francis H. Champneys in the chair. Two midwives were struck off the roll, the following charges, amongst others, having been brought forward in the case of one of them:—

> That being in attendance at a confinement the midwife was guilty of negligence in the following respects. The patient, suffering from illness with abdominal pain, offensive discharge, and raised temperature, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 20; the patient being in the condition aforesaid, the midwife neglected to hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might immediately be forwarded to a medical practitioner or to an approved institution, as required by Rule E. 20; she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14; neglected to wash the patient's external parts with soap and water and to swab them with an efficient antiseptic solution at any time, as required by Rule E. 8, and she neglected to disinfect her hands and forearms before touching the generative organs of the patient, as required by Rule E. 14. Medical aid having been sought for the patient, the midwife neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a), and the case being one supposed to be infectious, she neglected to send to the local supervising authority the notification required by Rule E. 6, and the notification that she was herself liable to be a source of infection pursuant to Rule E. 22 (1) (e). Being in contact with a case supposed to be infectious, the midwife attended another case in her confinement and continued to visit her without having undergone the disinfection prescribed by Rule E. 6. The midwife did not enter records of the pulse and temperature of her patients in a note-book or on a chart carefully preserved, as required by Rule E. 14, and did not keep her register of cases as required by Rule E. 24.

David Lewis Northern Hospital, Liverpool.—Many interesting questions were touched upon at the annual meeting of the David Lewis Northern Hospital, held in the Liverpool Town Hall under the presidency of the Lord Mayor, on Feb. 27th. In submitting the annual report Mr. W. H. S. Oulton, vice-chairman of the hospital, stated that its keynote was the word "increase." There had been increases in everything during the year. The number of in-patients had increased by several hundreds, the names of pensioners treated had doubled, and the number of out-patients had increased by 15,000. The staff had been increased, not only because of the greater number of patients, but also because they felt that the nurses should work fewer hours. Salaries had also been made larger, and the expenditure on foodstuffs, surgical and medical appliances, &c., had also gone up. The committee had done its best, but they could not run a first-class hospital on third-class rates. He made a special appeal to the working classes to support the hospital, which is situated near the docks in a working-class neighbourhood where accidents are common. The working man was a sportsman, and if made to realise that the hospital supplied him with the highest medical and surgical skill he would feel it his duty to contribute more generously to its maintenance. The financial statement showed that the expenditure for the year amounted to £32,161, and the income to £26,973, being a loss on the year of £5188, to which had to be added £6953, the debit balance carried forward from the previous year. In submitting these figures the honorary treasurer, Mr. W. B. Stoddart, stated that had it not been for the income derived from the maintenance of soldiers and pensioners, from the Public Health Department, and from private patients, the financial position of the hospital would be deplorable. In his capacity as treasurer it had been his duty to approach many rich men for subscriptions, and the universal attitude seemed to be that they had ceased to subscribe to the hospitals because they felt that such institutions should be supported by the rates. He had, however, information that made it quite clear to him that the Government had no intention of taking over the voluntary hospitals.

In moving the adoption of the report and accounts the Lord Mayor stated that he did not think the voluntary hospitals would ever be placed on the rates, but he thought that the time was ripe for such bodies as the corporations, vestries, and other local authorities to agree to give some sort of subsidy to the different hospitals. The matter was actually being considered at the present time, and he hoped for a sympathetic decision. Personally he thought it would be a mistake if the voluntary hospitals were taken over either by Government or by the municipalities. Such a step would impoverish us in the grace of charity, for the diminution of individual interest in the hospitals would be enormously to their disadvantage. He had great hope that the scheme, initiated by his predecessor in office, to raise £80,000 for the voluntary hospitals would do much to relieve the situation in which, at present, all the hospitals in the city found themselves. Already close on £46,000 had been raised, which was a proof that voluntary giving was not yet dead.

The Royal Hospital for Women, Shaw-street, Liverpool, has received a generous donation of £10,000 from Mr. and Mrs. John Rankin, who took this practical method of expressing their admiration of what they had seen during a visit paid to the institution recently.

The late Dr. F. W. S. Culhane.—Frederick William Slater Culhane, who died at Hastings on Feb. 15th, had only recently retired from the office of medical superintendent of Hastings Workhouse, which he had held for a long time. He was a past president of the East Sussex Medico-Chirurgical Society, and held the office of treasurer. A University College man, he took the L.S.A. diploma in 1877, and became M.R.C.S. Eng. in 1878.

King Edward VII. Hospital, Cardiff.—An appeal has been issued by the Lord Mayor of Cardiff for £150,000 on behalf of the King Edward VII. Hospital, Cardiff. It is not the intention of the board of management to erect further buildings on the present site, but the money is urgently needed to enable the hospital to complete its buildings and extend its accommodation and equipment to meet the growing demands made upon it. At the present moment there are 267 beds available and 1090 patients on the waiting list. A large scheme of extension was decided upon in 1915–16 with a view to provide a further 170 beds. It is essential to the efficient working of the hospital that adequate and suitable accommodation should be provided for the nursing staff, many of whom now have to be lodged in adjacent houses. When the new wards are completed a nursing staff of 250 will be utilised, and a nurses' home is urgently required. The appeal is addressed especially to the employers of labour and the workmen engaged in the South Wales and Monmouthshire area, since the King Edward VII. Hospital is the principal centre for the relief of sickness within this area; but those interested in the Welsh National School of Medicine, of which the hospital is an essential part, are also specially concerned. Subscriptions may be sent to the Lord Mayor of Cardiff, City Hall, Cardiff.

An out-patient department in psychiatry has been arranged at the hospital. When, in due course, a psychiatric clinic for in-patients is established in Cardiff it is proposed that the out-patient clinic be and remain part of the out-patient department of the hospital. As soon as the necessary arrangements have been carried out cases of mental and associated trouble in their early phases will be able to receive advice and treatment at the new out-patient department.

WOMEN will be granted admission to the Fellowship of the Royal College of Surgeons of Edinburgh.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—Hospitals in the County of London, or within nine miles of Charing Cross, desiring to participate in the grants made by this Fund for the year 1920 must make application before March 31st to the honorary secretaries, 7, Walbrook, E.C. 4. Applications will also be considered from convalescent homes which are situated within the above boundaries, or which, being situated outside, take a large proportion of patients from London. Applications will also be considered from sanatoriums for consumption which take patients from London, or which are prepared to place beds at the disposal of the Fund for the use of patients from London hospitals.

Distribution of Surplus Red Cross Funds.—The latest date for the receipt of applications for grants out of the special distribution of surplus Red Cross Funds, in aid of schemes of extension or improvement at London hospitals which can and will treat ex-soldiers or ex-sailors, is March 12th.

BRIGHTON DENTAL HOSPITAL.—The Governors of the Brighton, Hove, and Preston Dental Hospital at their annual meeting on Feb. 27th approved of a scheme to amalgamate with the hospital the Public Dental Service, a provident dental institution carried on in the same building, which receives payment by instalments from the patients. The facilities for free treatment in urgent cases are still to be available, and under the new regime the hospital will cover the whole range of dentistry, instead of confining itself to purely operative work.

THE LATE DR. T. G. ALDERTON.—Thomas Gunton Alderton, who was well known both as a general practitioner at Hammersmith and as honorary treasurer of the Medical Defence Union, died on Feb. 22nd in his seventieth year, following an attack of hemiplegia which occurred about four months ago. He was educated at Epsom College, and qualified with the M.R.C.S. Eng. and L.R.C.P. Lond. in 1874. He served as house physician to the Hospital for Diseases of the Chest, Victoria Park, and later as house surgeon at the West London Hospital, where he was afterwards appointed anæsthetist, becoming consultant anæsthetist on retirement from the active staff. He was the first honorary secretary of the West London Medico-Chirurgical Society, of which he was president in 1890–91, and at the time of his death treasurer. He was also the treasurer of the Cavendish Lodge of Freemasons, which was founded by some of the staff of the West London Hospital and which was one of the earliest medical lodges to be consecrated in London. Among the local appointments which he held were those of surgeon to the Convent of the Sisters of Nazareth and medical attendant to the St. James's Home, Fulham. Dr. Alderton was a man of sound judgment and sterling character, and his death is a loss to the professional world.

LEICESTER PUBLIC MEDICAL SERVICE.—The board of management, in presenting a report of the Leicester Public Medical Service for 1919, records an increase in the rates of contributions paid by subscribers to the service, which came into operation in July last. Special reduced rates are charged to subscribers who are in receipt of Old Age Pensions and to those who are receiving assistance from the guardians. The Leicester Public Medical Service provides free medical treatment for the uninsured blind of Leicester, and also for members of the Cripples Guild and the Wycliffe Society for Helping the Blind. The Education Committee has continued the arrangement with the board, whereby the school clinic work is carried on at the Central Dispensary, and 3135 new cases, in addition to many others, received treatment during the year, comprising vision, 580; nose, ear and throat, 602; and teeth, 1953. The board recently decided to set up and equip a pathological laboratory at the Central Dispensary. Various articles of equipment have been acquired from the Medical Research Committee, and Dr. T. C. Clare has been appointed pathologist.

The committee of the Leicester Subdivision of the Union of Medical Practitioners, in presenting their report for the year 1919, states that the scheme under which arrangements were made for giving medical attendance to patients of doctors absent on military service will henceforth be discontinued, since the need for it no longer exists. The success of a scheme for collective locum tenancies during the summer holidays is recorded. Thirteen practitioners availed themselves of the facilities and contributed £163 16*s*. to the pool. A scheme on similar lines for collective locum tenancies during sickness or short absences has just been arranged, to remain in force until March 31st. The following officers were elected for the ensuing year: Dr. E. Lewis Lilley (chairman), Dr. A. Foster (vice-chairman), Dr. Astley V. Clarke (treasurer), and Dr. W. Moffat Holmes (honorary secretary).

A MATINEE, to celebrate the jubilee of the Ladies' Association of the Great Northern Central Hospital, Holloway, N., will be held at the Palladium in May next.

THE LATE DR. F. M. NEWTON.—Francis Morley Newton, who died on Feb. 15th at the age of 45, was a student of St. Bartholomew's Hospital and qualified M.R.C.S. Eng., L.R.C.P. Lond., in 1905. After holding a resident post at the Bagthorpe Infirmary, Nottingham, he became resident medical officer to the Stoke-upon-Trent Workhouse Infirmary some ten years ago, and had held this post ever since. He was public vaccinator to the Stoke-upon-Trent rural district, and during the war acted as anæsthetist to the local war hospital.

TUBERCULOSIS IN DEVON.—At a recent meeting of the Torrington rural council the chairman stated that there were 1000 cases of "consumption" not notified in the county. The medical officer of health remarked that it was the duty of medical men who attended these cases to notify them, and unless they did so some action would have to be taken.

SOUTHMEAD HOSPITAL, BRISTOL.—At a recent meeting of the Bristol guardians it was stated that the Southmead Hospital, completed in 1914 and used till recently as a military hospital, would shortly be opened for the sick poor. It provides 544 beds, and is situated on the edge of the city at a height several hundred feet above sea-level. There is ample room for expansion. It is intended to appoint a team of consultants to act with the permanent staff of the hospital, and to make some provision for patients able to pay a small sum for their treatment.

BRISTOL ROYAL INFIRMARY.—The Duchess of Beaufort and other ladies have issued an appeal "to women for women," asking for £15,000 to maintain 30 beds for three years in the maternity department of the Bristol Royal Infirmary. These beds are available now that the soldiers have left the Royal Edward Memorial Wing of the institution, and it is confidently expected that the required sum will be subscribed.

ROYAL DEVON AND EXETER HOSPITAL.—The annual meeting of the subscribers to this institution was held on Feb. 26th. The financial statement showed that the ordinary expenditure exceeded the ordinary income by £2060. The chairman (Sir Chaning Wills) stated that when the new wing was completed the annual cost of working it would be about £10,000. A member alluded to a suggestion, made at the annual meeting of the Exeter Dispensary, as to the amalgamation of that institution with the hospital. It was stated that a subcommittee of the dispensary had been appointed to approach the hospital authorities on the matter. The meeting decided that the hospital committee should consider the subject before receiving the delegates.

PAYING PATIENTS AT THE PAIGNTON HOSPITAL.—At the annual meeting of the friends of the Paignton (Devon) Hospital it was decided that private patients who pay $2\frac{1}{2}$ guineas weekly shall in future pay their medical attendant. It was stated that some patients were trying to gain admission to the hospital who were in a better financial position than the medical men.

OCKENDEN CONVALESCENT HOME, TORQUAY.—At the annual meeting of the subscribers to this institution, recently held, the medical report stated that 258 patients had been admitted, with an average stay of 29 days. Dr. A. E. Carver, honorary physician, and Mr. H. K. Lacey, honorary surgeon, who had both held their appointments for 15 years, were awarded a hearty vote of thanks for their services.

DEATH OF DR. E. C. FENOULHET.—Edward Cooper Fenoulhet, a well-known Herne Bay practitioner, died at his residence recently in his sixty-seventh year. He received his medical education at Queen's College, Galway, and at St. Mary's Hospital, London, and obtained the L.M., Coombe Hospital, Dublin, in 1879, later taking the L.R.C.P. & S. Edin. Dr. Fenoulhet was an examiner, lecturer, and honorary member of the St. John Ambulance Association and senior honorary medical officer to the Herne Bay Cottage Hospital; he was also a justice of the peace for Kent.

THE LATE DR. J. PINKERTON.—James Pinkerton, who died on Feb. 16th, aged 58, was a student of Queen's College, Belfast, an exhibitioner of the Belfast Royal Hospital in 1880, and a Coulter exhibitioner in the following year, when he graduated M.D., M.Ch., and L.M. in the Royal University of Ireland. In 1883 Dr. Pinkerton went to Liverpool, where he was appointed resident medical officer of the Brownlow Hill Infirmary, and was afterwards elected to the staff of the Birkenhead and Wirral Children's Hospital. He took an active interest in the Children's Convalescent Home at West Kirby, to which he was a visiting physician.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, March 11th.—Papers:—Mr. W. G. Duffield, Mr. T. H. Burnham, and Mr. A. A. Davis: The Pressure upon the Poles of Metallic Arcs, including Alloys and Composite Arcs (communicated by Prof. O. W. Richardson).—Mr. J. H. Vincent: Further Experiments on the Variation of Wave Length of the Oscillations generated by an Ionic Valve due to Changes in Filament Current (communicated by Prof. W. H. Bragg, O.B.E.)—Mr. H. A. Daynes: (1) The Theory of the Katharometer (communicated by Prof. S. W. J. Smith); (2) The Process of Diffusion through a Rubber Membrane (communicated by Prof. S. W. J. Smith).

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Thursday, March 11th.

OCCASIONAL LECTURE: at 5 P.M.

Sir Jagadis Bose, C.I.E., C.S.I.: Plant and Animal Response (with Demonstration of Growth by the Magnetic Crescograph).

MEETINGS OF SECTIONS.

Wednesday, March 10th.

SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—W. Sampson Handley, Sir Gordon Watson): at 5.30 P.M.

Cases:

Mr. Lockhart-Mummery: Case of Double Growth in Colon.
Mr. Graeme Anderson: Syphilitic Stricture of Rectum.
Mr. Gabriel: Intestinal Obstruction following Abdomino-perineal Excision.

And other cases.

Thursday, March 11th.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Professor J. S. B. Stopford: Results of End-to-end Suture of Peripheral Nerves.

Friday, March 12th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5 P.M.

Exhibition of Cases.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, March 8th.—8.30 P.M., Dr. L. E. Hill: Heat Hyperpyrexia—the Clinical Aspect.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

Wednesday, March 10th.—4.30 P.M., Paper:—Mr. H. M. Thornton: Gas in Relation to Industrial Production and National Economy.

HUNTERIAN SOCIETY, at the School of Oriental Languages, Finsbury-circus. E.C.

Wednesday, March 10th.—9 P.M., Papers:—Dr. F. H. Humphris: Modern Physiotherapy.—Mr. J. E. H. Roberts: The Treatment of Septic Fingers.

CHILD STUDY SOCIETY, LONDON, at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

Thursday, March 11th.—6 P.M., Miss M. J. Reaney, D.Sc.: The Educational Needs of Adolescence.

HARVEIAN SOCIETY, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

Friday, March 12th.—8.30 P.M., Harveian Oration:—Sir Thomas Horder: The Diagnostic Significance of Nerve Symptoms in Acute Infections.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Tuesday, March 9th, AND Thursday.—5 P.M., Goulstonian Lectures:—Dr. J. L. Birley, C.B.E.: The Principles of Medical Science as Applied to Military Aviation. (Lectures I. and II.)

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—

Tuesday, March 9th.—5 P.M., Lecture VII.

A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—

Wednesday, March 10th.—4.30 P.M., Lecture VII.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Wednesday, March 10th.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 A.M., Lecture X., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, March 12th.—9.15 P.M., Mr. A. Cheatle: Syphilis of the Ear.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, March 8th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M. In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Gibbes: Pericarditis.

Thursday.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

Saturday.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, March 11th.—5 P.M., Lecture IX.:—Dr. H. M. Berry: X Ray in the Diagnosis of Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, March 9th.—2 P.M., Demonstration (II.):—Dr. A. J. Whiting: The Early Diagnosis of Pulmonary Tuberculosis. 4.30 P.M., Lecture:—Dr. E. Jones: The Advantages and Disadvantages of Psycho-analysis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, March 8th.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Ward Cases: Dr. Saunders.

Tuesday, March 9th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Risien Russell.

Wednesday, March 10th.—2 P.M., Mr. Sargent: Injuries of Peripheral Nerves and their Surgical Treatment. (II.) 3.30 P.M., Dr. Hinds Howell: Syphilis of the Nervous System. (II.)

Thursday, March 11th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Ward Cases: Dr. S. A. Kinnier Wilson.

Friday, March 12th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3:30 P.M., Dr. Gordon Holmes: Ataxia.

Saturday, March 13th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Saturday, March 6th.—10 A.M., Mr. Banks Davis: Operations of the Throat, Nose and Ear.

Monday, March 8th.—5 P.M., Mr. D. Armour: Operations for Hernia.

Tuesday.—2 P.M., Dr. Pernet: Demonstration of Skin Cases.

Wednesday.—2 P.M., Dr. Morton: Demonstration of Radiography.

Thursday.—2 P.M., Mr. B. Harman: Operation for Squint.

Friday.—5 P.M., Special Lecture:—Sir A. Pearce Gould: An Old Clinical Lecture, New Edition.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, March 10th.—4.30 P.M., Dr. Inman: Laboratory Methods in the Diagnosis of Tuberculosis.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Monday, March 8th.—3 P.M., Sir John Cadman, K.C.M.G.: (1) Modern Development of the Miner's Safety Lamp.

Tuesday.—3 P.M., Prof. A. Keith: British Ethnology: The Invaders of England. (Lecture II.)

Thursday.—3 P.M., Lieut.-Col. E. Gold, R.E., D.S.O.: The Upper Air.

CHADWICK PUBLIC LECTURES, in the Lecture Room, Royal Society of Arts, John-street, Adelphi, W.C.

Monday, March 8th.—5.15 P.M., Lecture:—General Sir John Goodwin, K.C.B., C.M.G., D.S.O.: Military Hygiene in Peace and War. I., Army Hygiene prior to the Recent War (illustrated by lantern slides).

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, March 8th.—3.30 P.M., Dr. Nutt: X Ray Examination of the Urinary System.

Tuesday.—4 P.M., Dr. Hay: Errors of Refraction.

Wednesday.—3.30 P.M., Dr. Wilkinson: Treatment of Suppurating Ears.

Thursday.—3.30 P.M., Dr. Skinner: Lupus, Lichen Planus, &c.

Friday.—4 P.M., Dr. Hay: Subjective Sight-testing

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, March 9th.—4.30 P.M., Dr. A. E. Barclay: X Ray Demonstration of Œsophagus and Stomach.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, March 11th.—4.30 P.M., Lecture:—Dr. Reid: Locomotor Ataxia. (At Ancoats Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Sussex County Hospital.

Thursday, March 11th.—4 P.M., Clinical Demonstration.

WESTON-SUPER-MARE HOSPITAL.—At the annual meeting of the subscribers to this hospital, held last week, Dr. J. Wallace, on behalf of the Weston-super-Mare Red Cross Hospital, presented the hospital with £3070.

Appointments.

Hawker, G. P. D., M.D., B.C. Cantab., has been appointed Honorary Consulting Surgeon to the Exeter Dispensary.

Henderson, C. J., M.B. Durh., Assistant Medical Officer at the Royal Albert Institution, Lancaster.

Jones, W. H., M.B., B.S. Lond., Honorary Surgeon Anæsthetist to Charing Cross Hospital and Lecturer on Anæsthetics in the Medical School.

Mace, J. F., L.D.S. Eng., Honorary Dental Surgeon to the Ockenden Convalescent Home, Torquay.

Roper Saunders, W. E., L.R.C.P., M.R.C.S., D.P.H., Assistant County School Medical Officer for Durham.

Steele-Perkins, J. S. S., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Honorary Consulting Surgeon to the Exeter Dispensary.

Sullivan, W. C., M.D. R.U.I., Superintendent of Broadmoor Asylum.

Woodroffe, H. D., M.D., B.Ch., B.A.O. T.C.D., Medical Officer of Health for the Stratton (Cornwall) Rural District.

Certifying Surgeons under the Factory and Workshop Acts: Jefferiss, I. M., M.R.C.S., L.R.C.P., Lond. (Okehampton); Buchanan, T. A., L.R.C.P. & S.I., (Clogher); Logan, D. D., M.D. Glasg. (Newmains); Twamley, H. J., L.R.C.S. Irel., L.A.H. Dub. (Castle Hedingham); Brittain, P. M., L.S.A. Lond. (Hatfield).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Asst. H.S. £200. Second Asst. H.S. £150.

Bath, Royal Mineral Water Hospital.—Res. M.O. £250.

Bexley, Kent, London County Mental Hospital.—Asst. M.O. 7 gs. a week.

Birmingham City Education Committee.—Asst. Sch. M.O.'s £450.

Birmingham, Dudley-road Hospital.—Sen. Asst. M.O. £375. Also Jun. M.O. £275.

Birmingham, Monyhull Colony for Epileptics and Feeble-minded.—Res. M.O. £650.

Blackburn and East Lancashire Royal Infirmary.—Jun. H.S. £250.

Bolingbroke Hospital, Wandsworth Common, S.W.—P. £50.

Bournemouth, Royal Victoria and West Hants Hospital.—S. and Anæs. Hon. S. for Ophth. Dept. Also Res. M.O. £200.

Bradford Royal Infirmary.—Two H.S.'s £200.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

Bristol General Hospital.—Pathologist and Curator of the Museum. £500. Also Two H.P.'s, H.S., Obstet.O., and H.S. All £175.

British Guiana.—Asst. M.O. £400.

Cambridge, Addenbrooke's Hospital.—Hon. Asst. P.

Cambridgeshire Mental Hospital, Fulbourn, near Cambridge.—Asst. M.O. £400.

Cancer Hospital, Fulham-road, S.W.—Hon. Dent. S. 25 gs.

Carlisle, Cumberland Infirmary.—H.P. £250.

Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—H.S. £120.

Croydon Borough Hospital for Infectious Diseases.—Res. M.O. £500. Asst. Res. M.O. £350.

Derbyshire Royal Infirmary.—Hon. Asst. P. Also Asst. M.O. to Venereal Diseases Department.

Devonport, Royal Albert Hospital.—H.S. £200.

Doncaster Borough.—Asst. M.O. and Sch. M.O. £500.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Eastbourne Eye Infirmary.—Hon. Ophth. S.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. £125. Also Cas. O. £120.

East Suffolk County Education Committee.—Dentist. £400.

Edmonton Education Committee.—Oph. S. 2 gs. per half day.

Essex County Council.—Asst. County and Sch. M.O. and Mental Expert. £750.

Gateshead Dispensary.—Asst. M.O.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O. £150. Also Hon. Dent. S.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Director of the Massage and Physical Exercises Department.

Hull Education Committee.—Sch. Dent. £400.

Hull Royal Infirmary.—Asst. H.S. £250.

Johannesburg (University of South Africa), South African Medical School of Mines and Technology.—Prof. Vet. Anat. £800.

Kesteven County Council.—Female Asst. Sch. M.O. and M.O.H. £450.

Lancaster County Asylum.—Asst. M.O. £300.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester City Hospital and Sanatorium, Groby-road.—Two Res. M.O.'s. £400 and £300.

Leicester Royal Infirmary.—H.P. £250.

Lewisham Union.—Sec. Asst. M.O. £300.

Liverpool, Brownlow Hill Poor-law Hospital.—Res. Asst. M.O. £300.

Liverpool, David Lewis Northern Hospital.—Two H.P.'s and Three H.S.'s. £150.

Liverpool, Royal Southern Hospital.—Two H.P.'s and three H.S.'s. £100.

Liverpool, Stanley Hospital.—Two H.S.'s. £150.

London County Council, Public Health Department.—Asst. M.O.'s. £400.

London Hospital, Whitechapel, E.—Asst. S. and Asst. P.

London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C.—P. in charge of Dept. for Mentally Defective Children. Also P. for Diseases of Children.

London Lock Hospital, Dean-street, Soho, W.—H.S. £200.

Macclesfield County Asylum.—Asst. M.O. £350.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £250. Also Hon. Aural S.

Maidstone, Kent Education Committee.—Sch. M. Inspec. £492.

Maidstone, West Kent General Hospital.—H.P. £200.

Manchester, Ancoats Hospital.—Hon. Aural S. Also Anæsthetist, 10*s.* 6*d.* per attendance.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150. Also Asst. P. £50.

Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill-road.—Hon. S.

Manchester, St. Mary's Hospitals for Women and Children.—H.S. for Whitworth Park Hospital. £100.

Metropolitan Hospital, Kingsland-road, E.—H.P., H.S., Asst. H.P., and Asst. H.S. £100.

Middlesbrough Education Committee.—Asst. Sch. M.O. £450.

Miller General Hospital for South-East London, Greenwich, S.E.—M.O. for X ray Dept. Also H.P. and Registrar. £100.

Monmouthshire Education Committee.—Asst. M.O. £500. Also Sch. Dentist. £400.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.

Newcastle-upon-Tyne, City Hospital for Infectious Diseases, Walker Gate.—Res. M. Asst. £350.

Newcastle-upon-Tyne Dispensary.—Two Hon. S.'s and One Hon. P.

Northampton General Hospital.—H.S. £150.

Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept. Also H.P. £150.

Portpatrick.—M.O. and Public Vaccinator. £80.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Dist. Res. M.O. £80.

Queen Mary's Hospital for East End, Stratford, E.—H.P. and H.S.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Two Asst. S.'s

Queensland, Institute Tropical Medicine, Townsville.—Physiologist and Biochemist. £700.

Reading County Borough.—M.O.H. £800.

Reading, Royal Berkshire Hospital.—Pathologist. £600.

Royal Free Hospital.—Temp. Asst. S.

Russian Red Cross Hospital in Near East.—M.O. £1000.

St. Bartholomew's Hospital and College.—Demonstr. of Pathology.

St. Mary's Hospital for Women and Children, Plaistow, London, E.—Res. M.O. £200. Also Surg. in charge X ray Dept. £50.

Salford Royal Hospital.—Res. S.O. £250. H.P. £200. H.S. and Cas. H.S., £150 each.

Salford Union Infirmary.—Sen. Res. Asst. M.O., Sec. Res. Asst. M.O. £350 and £300.

Scarborough Hospital and Dispensary.—Two H.S.'s £150.

Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—P. 50 gs. Three Anæsth.'s. 50 gs. H.S. £100.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—Radiologist. £100.

Shrewsbury, Royal Salop Infirmary.—H.S. £250.

Singapore Municipality, Straits Settlement, Infectious Diseases Hospital, &c.—Med. Supt. £900. Asst. Health O. £750.

Stoke-on-Trent, North Staffordshire Infirmary.—Two H.S.'s. £200.

Sunderland County Borough.—Asst. M.O.H. and Maternity and Child Welfare M.O. £600.

Turks and Caicos Islands.—M.O. £400.

University of London.—External Examiners.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—P.'s.

Warwick County Lunatic Asylum.—Sec. Asst. M.O. £300.

West London Hospital, Hammersmith, W.—H.S., Asst. Anæsth.

Wigan County Borough Education Committee.—Part-time Dentist. £150.

Winchester, Royal Hampshire County Hospital.—H.S. £250.

Worcester County and City Lunatic Asylum, Powick, Worcestershire.—Med. Supt. £800.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Caldbeck, Hull, and Shaftesbury.

Births, Marriages, and Deaths.

BIRTHS.

Abel.—On Feb. 18th, at 21, Jenner House, Hunter-street, W.C. 1, the wife of A. Lawrence Abel, M.B., B.S. Lond., of a son.

Denning.—On Feb. 24th, at St. Catherine's, East Grinstead, the wife of Dr. Fredk. A. V. Denning, of a daughter.

Dodd.—On Feb. 25th, at 17, Ventuor Villas, Hove, to Dr. and Mrs. H. Grantham Dodd—a daughter.

Duggan.—On Feb. 20th, at College Gates, Worcester, the wife of Norman Duggan, M.B., F.R.C.S., of a son.

Graham Brown.—On Feb. 26th, at Sheerwater Lodge, West Byfleet, Surrey, the wife of L. Graham Brown, M.C., M.A., M.B. Oxon., of a daughter.

Roper Saunders.—On Feb. 5th, at 19, Devonshire-place, Jesmond, Newcastle-upon-Tyne, to Dr. and Mrs. Roper Saunders—a daughter.

Shattock.—On Feb. 27th, at 38, Mecklenburgh-square, W.C., to C. E. Shattock, M.S., F.R.C.S., and Mrs. Shattock (F. Mackenzie, M.B., B.S.)—a daughter.

MARRIAGES.

Dixon—Holmes.—On Feb. 28th, at St. Clement's Church, Bournemouth, William John Dixon, M.B., M.R.C.S., L.R.C.P., of Trong, Taiping, to Grace Gertrude, younger daughter of the late William Holmes, of Morton Hall, Gainsborough, and Mrs. Holmes, Bournemouth.

DEATHS.

Bonney.—On Feb. 29th, at Elm Park-gardens, S.W., of pneumonia, William Augustus Bonney, M.D., F.R.C.S., aged 79 years.

Burgess.—On Sunday, the 29th Feb., at the Red House, Lincoln, Dr. Andrew Burgess, of Canwick-road, Lincoln. Funeral at Canwick Church on Wednesday, 2.30.

Maturin.—On Feb. 24th, at Hartley Wintney, of apoplexy, Henry Maturin, M.R.C.S., L.R.C.P., aged 77.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BELL, G., AND SONS, London.
My Chess Career. By J. R. Capablanca. Pp. 212. 7*s.* 6*d.*

CORNISH BROS., Birmingham.
Practical Hints on Minor Operations. By G. P. Mills, F.R.C.S. Pp. 111. 5*s.*

FORBES AND CO., Chicago.
The Woman of Forty. By Edith B. Lowry, M.D. Pp. 203. $1.25.

GREEN, W., AND SON, Edinburgh.
The Topographical Anatomy of the Limbs of the Horse. By O. Charnock Bradley, M.D., M.R.C.V.S. Pp. 172. 21*s.*

HEINEMANN, WILLIAM, London.
Home Exercises for Spinal Curvature. By R. Timberg, M.R.C.S. Eng., L.R.C.P. Lond. 2nd. ed. Pp. 68. 6*s.*

HODGE, WILLIAM, AND CO., London.
The Trial of Hawley Harvey Crippen. Edited with Notes and an Introduction by Filson Young. Pp. 211. 10*s.* 6*d.*

LONGMANS, GREEN, AND CO., London.
Food Supplies in Peace and War. By Sir R. H. Rew, K.C.B. Pp. 183. 6*s.* 6*d.*

METHUEN AND CO., London.
Evening Play Centres for Children. By Janet P. Trevelyan. Pp. 182. 5*s.*

NEW YORK UNIVERSITY PRESS, New York.
The Ground and Goal of Human Life. By Professor C. G. Shaw, Ph.D. Pp. 593.

PONSONBY AND GIBBS, Dublin.
Henry Quin, M.D. (1718-1791). By T. P. C. Kirkpatrick, M.D. Pp. 66. 10*s.* 6*d.*

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A.—Mr. R. J. Albery, Lond.; Messrs. Allen and Hanburys, Lond.; Prof. J. G. Adami, Liverpool; Automobile Association and Motor Union, Lond.; Alsace-Lorraine Development Trading Co., Lond.; American Machines Foundry Co., Lond.

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M.—Midwives Institute, Lond.; Middle Classes, Union, Lond.; Medical Research Committee, Lond.; The Mackenzie Davidson Memorial Fund, Lond.; Dr. R. W. MacKenna, Liverpool; Dr. I. Macdonald, Huelva, Spain; Messrs. Masson et Cie., Paris; Ministry of Health, Lond.; Mr. G. Mayall, Bolton; Dr. P. Manson-Bahr, Lond.; Dr. R. S. Miller, Khanka; Prof. C. S. Myers, Lond.; Middlesex Hospital Medical School, Lond,; Dr. W. Makeig-Jones, Torquay; Ministry of Pensions, Lond.

N.—National Rifle Association, Brookwood; National Safety Council, Chicago; National Council for Combating Venereal Diseases, Lond., Hon. Sec. of.

O.—Oxford University Press, Lond.; Oxford Ophthalmological Congress, Hon. Sec. of.

P.—Miss R. Paget, Lond.; Dr. G. N. Pitt, Lond.; Lady Petre, Ingatestone; Dr. R. H. Paramore, Rugby.

R.—Royal Albert Institution, Lancaster; Royal Institution of Great Britain, Lond.; Royal Society, Lond.; Dr. J. W. Rob, Weybridge; Royal Institute of Public Health, Lond.; Royal Society of Arts, Lond.

S.—Colonel H. Smith, I.M.S., Amritsur; Nurse Scott, Lond.; Société des Sciences Medicales et Biologiques de Montpellier; Standard Tablet Co., Hove; Colonel T. E. Sandall, Oxford; Prof. W. Stirling, Manchester; Dr. F. J. Scrimgeour, Plymouth; Serbian Red Cross Society in Great Britain, Lond., Chairman of; Dr. F. D. Saner, Lond.; Société Internationale de Chirurgie, Brussels; *Science Siftings*, Lond.; Editor of.

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Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

COLONIAL HEALTH REPORTS.

Malta.

THE report on the Blue-book for 1918-19 gives the civil population on April 1st last as 224,655. The birth-rate for the year was 30·09 per mille and the death-rate 26 30 per mille. The death-rate among children under 12 months was 244·60 per 1000 births, and that of children under 5 years was 107·06 per 1000 of the population of that age.

Influenza, marked by intercurrent or subsequent pneumonic infection, was the outstanding feature of communicable diseases in the islands. The number of deaths certified as due to influenza as a primary cause of one or other of the fatal complications was 685, equal to a mortality rate of 3·04 per 1000 of the population. Inclusion of all deaths from bronchopneumonia and pneumonia would bring this rate up to 4·11. As was expected, an increase in the number of deaths from pulmonary tuberculosis has been observed, and is accounted for by the injurious spurt set on by inter-current influenzal infection. Otherwise the state of health of the islands has been satisfactory. 4439 persons were successfully vaccinated. The mean temperature for the summer months of June, July, August, and September was 74·8, and for the winter months of January, February, and March 55·9. The total mean rainfall was 20·44, or 2·73 inches more than in 1917-18. The number of patients admitted into the hospitals of Malta and Gozo was 3974, and 145834 persons were attended by the district medical officers at the Government dispensaries or at their own residences. The number of inmates in the Leper Hospital on March 31st, 1919, was 93.

Trinidad and Tobago.

In his report for the year 1918, the acting Colonial Secretary, Mr. H. B. Walcott, says the estimated population of the two islands on Dec. 31st was 381,309. The white population is chiefly composed of English, French, Spanish, and Portuguese. The large majority of the inhabitants are natives of the West Indies of African descent, the balance being made up of East Indians, estimated at 129,300, and a small number of Chinese.

The birth-rate was 31·01 per 1000 and the death-rate 21·70 per 1000. The number of deaths of children under one year was 1628, and the infantile mortality was 138·4 per 1000 births. The death-rates from the principal diseases were: diarrhœa and enteritis, 2·02 per 1000: malaria, 2·20; tuberculosis, 1·44; dysentery, 0·78; enteric fever, 0·65; ankylostomiasis, 0·56. Measures for reducing the high infantile mortality in the colony were adopted during the year. The Government established a mothers' and infants' clinic at the Colonial Hospital, Port of Spain, where infants and expectant mothers were seen by a Government Medical Officer three times a week. The Notification of Births Ordinance now in force in Port of Spain provides for the notification of all births within 36 hours. A baby welfare league was started in 1918. There was no serious epidemic during the year. Influenza of a mild type was widespread, but was not attended by the high mortality observed in other countries. Hookworm disease, which seriously affects the labouring population, was treated on the intensive plan by the Rockefeller International Health Commission in a few districts, and the Central Board of Health instituted a campaign in all country districts with the object of effecting the provision of sanitary conveniences in connexion with all dwellings. The question of the housing of lepers was inquired into by a committee, whose recommendations were of great value, and a committee of medical men, under the chairmanship of the acting Surgeon-General, had under consideration the prevalence of venereal diseases and their control. Hospital accommodation in the islands includes 340 beds at the Colonial Hospital, Port of Spain, 123 at the San Fernando Hospital, and 246 at the Government District Hospitals in Tobago, Arima, St. Joseph, Tacarigua, Couva, Prince's Town, and Cedros. There are also small temporary hospitals at Chaquanas, Sangre Grande, Mayaro, and Toco. Hospitals for yaws patients are provided at St. Augustine (200 beds) and Tobago (160 beds).

Nigeria.

A delayed report on the Blue-book for 1917, prepared by Sir F. D. Lugard, G.C.M.G., C.B., D.S.O., Governor-General, states that in the Northern Provinces it was estimated that there were resident about 779 Europeans, of whom about 343 were officials. In the colony and Southern Provinces there were about 2000 Europeans, about 1250 being officials.

The native population of the Northern Provinces is estimated at 8,080,793, and of the Southern Provinces and colony at 7,856,000—a total of about 16 millions. The average density in the Northern Provinces would, therefore, be about 32 to the square mile, and in the Southern Provinces and colony about 98. Registration is compulsory in Lagos and Ebute Melta only, and the statistics from these places for 1917 showed: total births, 2846; total deaths, 2167; total deaths of infants under 1 year, 795; stillbirths, 141; infantile mortality per 1000 births, 279·3, In the Northern Provinces the cases treated of the five diseases, dysentery, malaria, blackwater fever, yellow fever, and trypanosomiasis, showed an increase, and malaria was responsible for, roughly, one-fourth of the total cases treated. In the Southern Provinces the general health compared rather unfavourably with that of the previous year. 132,878 cases were treated, of which 903 died, or a case mortality of 6·8 per 1000, as compared with 122,217 cases and 737 deaths in 1916, or a case mortality of 6·03 per 1000. There were 10,631 more cases reported than in 1916. This fact, however, can hardly be taken as an indication of an increase in the sick rate among natives, but rather as an indication, which has been noted annually in the past, of a greater inclination on the part of the native to avail himself of European methods of treatment.

With the exception of anæmia, general diseases are not frequently seen; there were 2 cases of diabetes, 7 of gout, 12 of exophthalmic goitre, 2 of leucocythæmia, and 3 of lymphadenoma. Eleven deaths were due to anæmia and 1 to leucocythæmia. Malaria, as usual, headed the list with 11,804 cases. There was 22 cases of blackwater fever in Europeans, with 11 deaths, and 5 cases occurred in natives, with 2 deaths. There were 6 cases (none fatal) of trypanosomiasis, 2 of which were in Europeans. Four cases of yellow fever occurred, of which 2 were in Europeans; 1 native and 1 European died of the disease. There were 2695 cases of chicken-pox reported and 231 of small-pox; also 12 cases of enteric, of which 3 natives died. Forty European officials and 34 European non-officials were invalided during the year, and there were 15 deaths among European officials and 8 among non-officials. Twenty-seven lepers were treated at the asylums at Yaba and Calabar.

Swaziland.

Mr. B. Nicholson, Government Secretary, in his report for 1918–19, states that the estimated population is now about 100,000, including 1700 Europeans. Amongst the latter there were during the year 9 marriages, 34 births, and 22 deaths. The births and deaths of natives are not registered.

Malarial fever was severe during the hot months and was accompanied in comparatively few cases by dysentery. There were a few cases of enteric. Cases of leprosy amongst the natives are discovered from time to time. The Swazis do not consider this disease to be infectious and steps are being taken more effectually to isolate known cases. The great epidemic of influenza which ravaged South Africa in the latter months of 1918 affected every part of Swaziland, but fortunately it appeared in a mild form. Extra doctors, nurses and orderlies were obtained through the Health Department of the Union Government, and everything possible was done through them, and, by the issue of free medicines, to alleviate the condition of those attacked. The natives, who had not hitherto taken a large advantage of the medical services of the territory, submitted freely to inoculation and to the administration of the medicines prescribed. During the epidemic the death-rate amongst the Europeans was ½ per cent., and amongst the natives approximately 1 per cent. The hospital at Mbabane is the only Government institution in the territory; it contains one European and two native wards. There were 133 admissions during the year and nearly 2500 out-patients were treated.

Basutoland.

Mr. J. P. Murray, Government Secretary, has issued his report for 1918 19.

He states that typhus fever, which had been prevalent in the Quthing and Qacnas Nek districts from August to December, 1917, had been entirely stamped out by May 11th, 1918. During the period there were 241 people affected, with 111 deaths. No further cases occurred during the year. The so-called Spanish influenza epidemic was rife in the months of October and November. In the absence of any registration of births and deaths no accurate statistics in regard to mortality from the disease are available. Apart from the direct observation of the medical staff, information obtained by the district officials from the native chiefs and from local statistics supplied by missionaries and traders, goes to show that the deaths in the territory may be safely estimated at 15,000. Probably 75 per cent. of the total population was affected. There has again been a notable decrease in the incidence of enteric fever. Dispensary and hospital work has been maintained at a high standard in spite of absence of some of the staff on war leave. The number of in-patients treated was 1984; out-patients (new cases) 23,078. On March 31st, 1919, there were 168 male and 181 female inmates in the Leper Asylum. During the year there had been 72 deaths, 9 births, 64 deserters, and 44 returned deserters. The high death-rate was due to the influenza epidemic, which also caused the greater number of desertions.

Bechuanaland Protectorate.

The health conditions for the year ended March 31st, 1919, as regards the incidence of general diseases, and relatively to predisposing and prevailing climatic influences, were above the average for the past few years.

Malarial disease, so far as it could be identified separately, was neither so prevalent nor so severe for the first half of the year. After that, however, the existence of the disease in the usual form was obscured by the epidemic of Spanish influenza, with which it revived and developed concurrently over the greater portion of the country. The mortality all round from influenza and its complications was estimated at between 4 and 5 per cent. of the population. Amaas, or modified small-pox, which was widespread amongst the various tribes two years ago, has, in consequence of the protection afforded by vaccination during that interval, all but disappeared; only one case was observed within the territory during the year.

PRACTICE IN JERUSALEM.

To the Editor of THE LANCET.

SIR,—With reference to your reply to "H. P. U. (U.S.A.)" in THE LANCET of to-day's date, as late D.A.D.M.S. in the Occupied Enemy Territory Administration of Palestine, I can inform you that a licence to practise is now granted to medical men and women who can produce diplomas of recognised universities and medical schools. This regulation was established about a year ago. A small fee is charged.

I am, Sir, yours faithfully,

Plymouth, Feb. 28th, 1920. F. J. SCRIMGEOUR.

THE AIR IN PUBLIC VEHICLES.

IT is stated that the London General Omnibus Company has arranged to spray motor omnibuses daily with disinfectant, and that the London County Council is considering the question of disinfecting tramway cars. It woul certainly be a satisfaction to the first traveller in an omnibu or tramcar to know that it was free from disease germs and th knowledge might afford him compensation for early rising But by 7 A.M. all public vehicles are full of micro-organisms some harmless and others pregnant with mischief for th susceptible traveller. Free ventilation and prevention o overcrowding are the only reliable safeguards, and so long a overcrowding seems to be unavoidable, ventilation needs t be in proportion. In so far as an antiseptic spray soothes th hygienic conscience to neglect the greater essentials, it ma do positive harm.

THE G. P. POCKET THROAT AND EAR OUTFIT.

Dr. Henry Dutch has adapted the common electric torc to the purposes of laryngology and otology by a device which consists of a metal collar fixed close to the lens of small cylindrical torch. To the periphery of this collar i attached a small piece of tubing through which runs a right angles to the plane of the collar a rod carrying at th forward end a laryngeal mirror, an ear speculum or a tongu depressor, as the case requires, the rod being adjusted by thumb-screw. Good illumination of the throat, fauces vocal cords, and the drum of the ear can be obtained, whil the laryngeal mirror can also be used with advantage fo examining the teeth. The device can be obtained from a surgical instrument-makers.

THE VOCAL THERAPY SOCIETY.

UNDER the auspices of this society a King's Service Choir, consisting of some 150 discharged and more less disabled soldiers, demonstrated at the South-Wester Polytechnic on Feb. 28th the benefit resulting from dee breathing and singing. The programme included "Th Trumpeter," "Up from Somerset," "Whisper and I Sha Hear," "Gallants of England," and the "Orderly," an the zest with which they were rendered bore amp testimony to the enjoyment of the singers. The practic sympathy and lack of conventionality on the part of Lad Carnarvon, the vice-president, and of the other officials of th society, obviously helps in no small measure to promote th success of the enterprise. We have already referred to th Vocal Therapy Society (THE LANCET, Feb. 7th, p. 358), th aims of which include the promotion through speech, son and efficient breathing of the mental health of the soldie in the hospitals and convalescent camps, and in discharg centres. In furtherance of these aims King's Services Choi are being formed in various places and the movement deserving of the heartiest public support. More tha 166.000 men have been discharged from hospitals medical unfit since the Armistice was signed, and both men a public will benefit if some of these can be made usef members of society by these means. Subscriptions shou be sent to the honorary treasurer, Mr. H. E. Bur 47, Lincoln's Inn Fields, London, W.C. 2.

THE INTERPRETATION OF MEDICAL CERTIFICATES.

Sir John Hope recently asked the Pensions Minister state in the House of Commons why the Midlothian Loc Pensions Committee, on June 18th, 1919, were ordered stop paying £1 9*s*. 7*d*. per week to Mrs. Maclaren, Dalkeit and in future only to pay 5*s*. 6*d*. per week; whether he w aware that Mrs. Maclaren had three young children support, and was the widow of Private T. Maclare No. 303407, 1/8th Argyll and Sutherland Highlanders, who death on Jan. 4th, 1919, was certified by the local medi officer to be the result of a wound received in action. reply, Sir L. Worthington-Evans stated that Priva Maclaren was discharged in August, 1917, for gunsh wound in the right leg and received a pension of 11*s*. week He died in January, 1919, from gastric ulcers, pericardit and heart failure, disabilities which, in the opinion of medical advisers, were not connected with his wound or wi his military service. In these circumstances the advanc provisionally made by the local committee could not be co tinued, and the widow was awarded a pension of 5*s*. 6*d*. p week under Article 17 of the Royal Warrant. In view, ho ever, of further evidence which has been submitted, t case is now being reinvestigated, and the decision will be delayed. If the decision is unfavourable to the wido she will be able to appeal to the Appeal Tribunal.

Sir John Hope rejoined that he had in his possessio medical certificate in which heart failure was not mention when Sir L. Worthington-Evans pointed out that the wido if a final pension is refused, has the right to appeal to independent tribunal; laymen must have extreme difficu in dealing with medical certificates.

Hunterian Lecture

ON THE

SURGICAL ASPECT OF DYSENTERY.

Delivered before the Royal College of Surgeons of England on Feb. 6th, 1920,

BY ZACHARY COPE, B.A., M.D., M.S. Lond., F.R.C.S. Eng.,

SURGEON TO OUT-PATIENTS, ST. MARY'S HOSPITAL; SURGEON TO THE BOLINGBROKE HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—Surgical complications are not common in dysentery; yet when the disease is very prevalent many occasions arise calling for the opinion of the surgeon, and not infrequently needing his operative interference. Every big military campaign produces its epidemic of dysentery, and the late war was no exception, for at Gallipoli, in Egypt, Mesopotamia, Persia, East Africa, and other places such numerous cases occurred that it should be possible to gain some knowledge from their consideration. Such knowledge would be all the more acceptable in that greater numbers of men are constantly going to and from the East, and that large numbers of latent, subacute, and chronic dysenteric patients are at present in this country.

The literature on the surgical aspects of dysentery is scanty, scattered, and not readily available; this fact, together with the difficulties and mistakes in the experience of the lecturer during service in Mesopotamia, serves as sufficient excuse for the present lecture. But, though during my stay in that country I saw the surgical complications incidental to one or two thousand cases of dysentery, in this short survey I have taken a wider outlook by giving information obtained from others whose combined experience enables me to speak more authoritatively than would be possible from my own work only.

The term dysentery is applied to the results of invasion of the large bowel either by the *Entamœba histolytica* or by various bacilli (Shiga, Flexner, Y-bacillus), which differ chiefly in their sugar-fermenting properties. At the same time, it is an open question whether one should not include under the same heading those cases of ulcerative colitis from which no specific organism has been obtained.

The amœbic infection leads to infiltration and ulceration of the intestinal wall. The ulcers are usually undermined and often scattered, and sometimes large areas are denuded of mucous membrane, whilst in severe cases of acute, sloughing, amœbic dysentery the bowel wall may be so rotten as to merit Rogers's apt simile of damp blotting-paper. In bacillary infection ulceration is not so constant a feature, but severe cases are accompanied by extensive sloughing of the mucosa, so that at autopsy there may be no particle of mucous membrane left in the large gut. Fever and toxæmia are more common features of the bacillary form of infection.

CONNEXION BETWEEN SURGERY AND DYSENTERY.

The surgeon may meet with dysentery in three ways: (1) Dysentery may develop as a complication of surgical conditions; (2) various surgical conditions may be simulated by dysentery; (3) complications needing the surgeon may arise in the course of dysentery.

1. *Dysentery as a complication of surgical conditions.*—When a patient has been the recent subject of dysentery it is no uncommon occurrence for the symptoms to be reawakened by the disturbance incidental to a surgical operation. Several times I have been alarmed by the development of acute dysentery in patients who before operation seemed perfectly healthy save for the condition needing interference. Probably the preliminary purgation is the main factor in awaking the disease, for it is well known that a purge will often bring back symptoms in a latent case of dysentery. Since some cases of malaria have dysenteric symptoms, examination of the blood and of the stools are needed for purposes of differentiation.

In long drawn out surgical diseases, for example, chronic suppurative conditions, where the body resistance is lowered, the onset of dysentery may determine a lethal result.

2. *Simulation by dysentery of surgical conditions.*—It is seldom that dysentery simulates surgical diseases. On one occasion a man over middle age was sent into my wards with a diagnosis of cancer of the rectum. The passing of blood and mucus with pain and tenesmus would certainly have led to that tentative diagnosis in this country, especially when, as in this case, an examination of the fæces showed no amœbæ. But after the preparation preliminary to a sigmoidoscopic examination, a further test of the fæces showed great numbers of amœbæ, and all the symptoms subsided under administration of emetine. Dysentery is frequently accompanied by piles, which must not be allowed to mislead the observer.

Sir Leonard Rogers has informed me of one case which was diagnosed by two surgeons as cancer of the rectum, and of another diagnosed as cancer of the cæcum, which were found to have amœbæ in the stools, and were cured by emetine. The same writer has known dysenteric cases diagnosed as tuberculous peritonitis, gangrene of the rectum, and intestinal obstruction.

The simulation of appendicitis by amœbic typhlitis and of cholecystitis by amœbic hepatitis will be touched on later, but the above errors in diagnosis are sufficient to warn the surgeon who works in a tropical country that he must ever be on the watch for dysentery.

3. *The surgical complications of dysentery.*—The surgical complications of dysentery may be classified into: A. Those due to local processes in the intestine. B. Those following on the remote effects of the organism or its toxins. C. Associated surgical conditions.

SURGICAL COMPLICATIONS DUE TO LOCAL PROCESSES IN THE INTESTINE.

Group A may be classified as follows: (i.) Perforation of colon causing general peritonitis, pericolitis, or pericolic abscess. (ii.) Acute œdematous localised colitis—for example, typhlitis. (iii.) Dysenteric appendicitis. (iv.) Extensive sloughing, the colon pus-sac. (v.) Cicatrisation and stricture of the colon or rectum. (vi.) Perinephric abscess. (vii.) Periproctitis.

(i.) *Perforation of Colon Causing General Peritonitis, Pericolitis, or Pericolic Abscess.*

In view of the extensive ulceration often occurring in the colon it is a matter of surprise that perforation is so uncommon. It is less common in bacillary cases. In 350 cases observed by Waller only one perforated, whilst Strong had three perforations in 200 amœbic cases. In Bartlett's statistics, out of 37 cases dying from amœbiasis or the direct result of dysenteric ulceration only three were due to perforation. Since it has been proved that perforations are sometimes cured naturally, it is possible that a perforating ulcer is more common than statistics show.

The most common sites of perforation are the cæcum and the sigmoid colon. The symptoms produced depend upon the position and direction of perforation of the ulcer.

(*a*) It may perforate into the general peritoneal cavity. In this case onset or increase of abdominal pain, vomiting, and collapse, rising pulse-rate, distension, and abdominal-wall rigidity may indicate the catastrophe, but in patients subject to a severe toxæmia the exacerbation of symptoms may not easily be distinguished from the collapse of toxæmia. If the perforation is diagnosed, what line should the surgeon take? The patient is often very weak, the bowel wall friable and unsuitable for suture, a surgical operation is very likely to have an immediately fatal issue, and, on the other hand, natural recovery has been known to occur. Rogers has pointed out that in bacillary cases the intestinal wall is not usually so friable, and would probably be more easily sutured. I think in most cases the question of operation would depend on the acuteness of the symptoms and the patient's reserve of strength. I have only been able to learn of two cases of successful suture of a dysenteric ulcer which had burst into the general peritoneal cavity. Both were under the care of Mr. C. C. Choyce, who is to be congratulated on these successes. The following case came under my observation.

J. R. M. began to have dysenteric symptoms on June 14th, 1918. The condition was recalcitrant to treatment, and on July 19th there was an acute attack of abdominal pain with rigidity of abdominal muscles and diminution of liver dullness. Perforation was diagnosed, but operation thought to be contra-indicated. The acute signs passed off, but intestinal hæmorrhage occurred and death from exhaustion took place on August 14th, nearly a month after perforation. At the autopsy there were 1½ pints of serous fluid and some flakes of lymph in the peritoneal cavity, and a localised abscess in the region of the mesosigmoid. There was gangrenous inflammation of the descending colon, iliac and pelvic colon, and rectum, with several thin areas sealed by omentum. There is no doubt that if the dysenteric process could have been controlled the patient would have recovered in spite of the perforation.

If operation should be considered advisable, spinal anæsthesia might be suggested, but for obvious reasons patients suffering from dysentery are not the best subjects for spinal injections. The technical difficulties in sewing up a rent in a very friable bowel wall must be considerable. In cases of perforation where the general condition is very poor as a result of toxæmia and exhaustion it is probable that by the adoption of the Fowler position, the injection of saline subcutaneously or intravenously, and possibly the administration of small doses of opium or morphine, the patient would stand as good (or as bad) a chance of recovery as if operation were performed.

(*b*) If perforation occurs retroperitoneally or after adhesions have formed round the thinned area of bowel wall an abscess may form and be amenable to surgical treatment. The most common region for such collections is the cæcal area, where the diagnosis may sometimes be difficult from appendicular abscess or non-suppurative dysenteric typhlitis. One case at Bagdad illustrated this point. There was a painful swelling in the right iliac fossa and amœbæ were found in the stools. I diagnosed amœbic typhlitis, but a colleague favoured the diagnosis of abscess; under treatment by emetine the swelling improved slightly, but a peritvphlitic abscess needed to be opened later. The correct diagnosis, I think, should have been localised perforation of the dysenteric cæcum. After the opening and drainage of abscesses resulting from localised perforation of the cæcum Novis states that not uncommonly the edges of the wound may become gangrenous. He adds that such a complication in some cases reacted well to injection of emetine and local application of carbolic acid.

(ii.) *Acute Œdematous Localised Colitis—Typhlitis.*

Dysenteric ulceration and inflammation may be limited to a circumscribed portion of the bowel. This is particularly the case with amœbic infection. Bartlett, in 26 autopsy cases in which amœbæ were found in the tissues, demonstrated that in 2 the descending colon alone showed lesions, in 3 the cæcum and ascending colon were alone involved, whilst in 6 others there was a limited affection of the large bowel. In 9 cases the cæcum showed the most advanced lesion. Now Rogers has laid stress upon the important fact that cæcal dysentery is often latent and does not so often give rise to the more urgent symptoms which result when the lower portions of the colon are involved. This fact was not known to me when first I went East. Hence it happened that from time to time I was faced with the clinical picture of swelling in the right iliac fossa accompanied by local pain and tenderness, which led to an operation under the supposition that there was an acute appendicitis. Operation in such cases revealed a greatly enlarged, œdematous, congested, and acutely inflamed cæcum with an appendix no more inflamed than would naturally result from the neighbouring inflamed cæcum. Such a definite typhlitis was on several occasions unaccompanied by any symptoms of dysentery when the patient came under observation. The only reference in the literature to this condition, apart from the references in Rogers's excellent book, is by Barry and Crump, who mention the simulation of appendicitis by large chronic dysenteric ulcers of the cæcum, and the production of severe intestinal hæmorrhage subsequent to some abdominal operation. But from correspondence and conversation with those who have had experience of dysentery cases in large numbers I gather that many have fallen into this error, though few have written about their mistake. Mr. Choyce, who has had a great experience of dysentery, tells me that in several hospitals he saw dysenteric typhlitis operated on for appendicitis, and on several occasions he was instrumental in stopping the operation when the surgeon had decided to operate. My own experience was rather bitter. Early in 1917 I operated on two patients at Nasiriyah in whom I had diagnosed appendicitis, but in whom I found a true typhlitis. Neither had dysenteric symptoms at the time of operation, but I suspected at the time that the typhlitis was of dysenteric origin. No harm resulted from these operations. At a later date the danger of interfering with such cases was brought home to me. A patient who presented symptoms of appendicitis proved at operation to have a much-thickened, juicy, congested cæcum and a congested appendix, which I removed. After the operation symptoms of acute dysentery developed, blood and mucus were passed frequently and in large quantities, and coma developed, ending in death within three days of the operation. About a year later I had a somewhat similar case with a happier ending.

Pte. E. was admitted to the 31 B.S.H. in July, 1918, as a walking patient, with constipation put down as the diagnosis on the field medical card. He had had attacks of diarrhœa alternating with constipation, as we subsequently found out. He was given an aperient the day after admission. On the third day after admission he complained of abdominal pain and had a temperature of 101° F. When I saw him a tender swelling could be made out in the right iliac fossa. A diagnosis of appendicitis was made and appendicectomy performed the same day. The appendix was swollen and inflamed, but the cæcum was still more congested and œdematous. Three days later very severe intestinal hæmorrhage occurred, and for several hours the radial pulse could not be felt. After 6 pints of saline had been given intravenously he rallied, but for days he continued to pass blood and mucus, and was troubled with incontinence of urine and vomiting. Then he became delirious, and passed more frequent and offensive stools. Emetine was then started (though neither amœbæ nor specific dysenteric bacilli had been found in the stools), and improvement was then uninterrupted.

These cases taught me my lesson, and I saw later several cases of dysenteric typhlitis which I diagnosed and cured by emetine. The importance of differentiating amœbic (dysenteric) typhlitis from appendicitis is clear, for while operation in the latter case is urgent, in the former it is fraught with peril. When such localised œdematous colitis affects the sigmoid, dysenteric symptoms are more likely to be present and local swelling and pain are less likely to give trouble in diagnosis. I have never seen a local dysenteric affection of the transverse colon, but Colonel T. P. Legge informed me that he saw a swelling of that portion of the gut disappear completely under treatment by emetine. I can do no better than repeat the words of Barry and Crump: "The surgeon will do well to weigh carefully the history of an attack of chronic dysentery before deciding upon an abdominal operation." To that I would add the recommendation that in countries where amœbic dysentery is endemic, the surgeon should have the fæces examined, and try a short course of emetine before operating on cases with symptoms of appendicitis accompanied by a swelling in the right iliac fossa.

(iii.) *Dysenteric Appendicitis.*

The vermiform appendix is affected by dysentery in common with the cæcum, but it is seldom that it gives rise to definite and separate symptoms. Usually this does not matter since both conditions improve together. If, however, perforation of the appendix should occur it would be considered necessary to operate. I had one such case.

A. M., 24 years, was admitted to 31 B.S.H. for corneal ulcer on August 2nd, 1918. On Sept. 14th, 1918, he developed abdominal pain and fever. On Sept. 17th he vomited and I was asked to see him. He presented a tender spot to the right of the middle line on the hypogastrium, tenderness per rectum on the right side of the pelvis, and rotation of the thigh caused hypogastric pain. (In passing I would like to call attention to the last-mentioned sign which I have never seen described, but which is sometimes a very useful help in diagnosing inflammation on the right side of the pelvis. It depends upon the movement of the obturator internus muscle, which causes pain referred to the hypogastrium when there is an inflamed mass adherent to the fascia covering it. This sign is no substitute for rectal examination, but when the latter is difficult or doubtful in a sensitive or stout subject useful aid may be obtained by its trial.)

I operated on this patient and found a large swollen appendix on the right side of the pelvis adherent to an adjacent coil of gut. There was no pus, but a very small perforation of the appendix with no escape of contents. The cæcum was very œdematous. I removed the appendix, but after operation the condition became worse. Hæmorrhage occurred from the bowel and right basal pneumonia supervened. The subcutaneous tissue of the wound became necrotic. There were no signs of peritonitis, but the patient had constant diarrhœa and incontinence of fæces. Death occurred nine days after operation. Autopsy showed extensive ulceration of the whole of the large bowel, whose mucous membrane had a leopard-skin appearance. *B. Shiga* was isolated after death.

I think in spite of the fatal complication the same symptoms would always demand operative treatment, though possibly earlier antidysenteric treatment might have been carried out. But the latency of the dysentery was deceptive, and since examination of the stools showed no specific bacillus or amœbæ a vaccine of *B. coli* had been given on the assumption that the condition was a *B. coli* toxæmia.

(iv.) *Extensive Sloughing: the Colon Pus-sac.*

The dysenteric process is sometimes so acute that large portions of the mucous membrane become necrotic. Sometimes the whole of the mucosa is destroyed, and then a fatal result is the rule. In less virulent cases extensive ulcerative surfaces are left, secondary infection supervenes, and the colon becomes virtually a pus-sac. It is then difficult or impossible to isolate the specific dysenteric bacilli, which, indeed, seem in most cases to be overshadowed by other bacilli within a few days of onset of the disease, as shown in the table of Martin and Williams:—

Period of disease.	No. of examinations.	Positive.	Percentage.
1–5 day	153	104	68·0
6–10 ,,	161	28	17·4
11–15 ,,	194	13	6·3
16–20 ,,	162	5	3·1
21–30 ,,	205	3	1·5
31–40 ,,	104	3	3·0
41–50 ,,	34	1	3·0

Carey Evans has pointed out that the majority of chronic dysentery cases are by no means simple infections. He remarks that at post-mortem examination the large intestine in such cases is an abscess cavity. So we must conclude that the patient is often well of his specific dysentery but ill from the ulceration and secondary infection which result from it. In such cases the physician, in addition to specific treatment, helps the evacuation of the toxic intestinal contents by the administration of aperients and by washing out the lower bowel from below. Can the surgeon be of assistance either (1) in the subacute stage, when the ulceration is taking place, or (2) when the colonic pus-sac is formed? In any case, it is assumed that the surgeon would not be needed until the art of the physician has failed to arrest the disease. This would exclude most cases of amœbic infection since they react to emetine so well.

(1) The general opinion is that surgical measures have no place in the acute or subacute stage. Cotte, however, has recently recorded seven cases in which he performed appendicostomy between the fifteenth and twentieth day of the disease when medical treatment had been of little or no avail. Five of the seven made a good recovery. Cotte washed out the colon with silver nitrate solution, 1 in 1000. In none of his cases did the operation appear to do harm, though it failed to save two patients. In the five successful cases recovery was prompt and permanent. It is hardly wise to draw conclusions from such few cases, though clearly the procedure is not so unreasonable as some have assumed.

(2) In chronic dysentery, especially the bacillary variety, when the sloughs which have come away make it clear that large ulcerating surfaces are present, and the clinical condition of the patient gives evidence that he is being slowly poisoned by the toxins which are being absorbed, the problem is less doubtful. Irregular fever, rapid pulse-rate, anæmia, emaciation give the clinical picture which ends in death from asthenia if prompt measures are not taken. Such cases are somewhat similar to those terrible cases of ulcerative colitis which are well known and dreaded by all physicians of experience.

When once it is certain that there are large chronic ulcerating surfaces in the colon, and when symptoms of toxæmia are present and do not improve under medical treatment, then surgical measures are imperative.

Reasons for Operation.

There are two purposes for which the surgeon may be asked to operate: (*a*) to provide an opening for washing out the colon from above, or (*b*) to divert the intestinal contents so as to give rest to the colon. These purposes are not necessarily mutually exclusive, but upon the main purpose depends the type of operation.

For providing means for irrigation of colon from above, appendicostomy and valvular cæcostomy are suitable. For diversion of the intestinal contents the surgeon must perform open cæcostomy or enterostomy or ileo-sigmoidostomy.

Appendicostomy has met with a considerable amount of success. The appendix is brought up to the abdominal wall, part of it is removed, but about an inch is left into which a rubber catheter is inserted, and through this the colon can be irrigated. Sometimes the appendix may be adherent, or difficult to find, or diseased, and then cæcostomy by the valvular method of Gibson is indicated. Valvular cæcostomy is probably preferable in most cases. By irrigating the colon through the opening it is possible to avoid stagnation of poisonous products with consequent toxæmia. The operation usually fulfils its purpose, though it is necessary to continue irrigation daily for months till the ulcerative surfaces have had time to heal. The condition may relapse if the opening be allowed to close too soon. It is well known that many dysenteric patients die with symptoms of toxæmia often extending over many weeks. Yet there appears great reluctance to try the simple surgical measure which at any rate *may* save the life which is failing.

Illustrative Case.

The following case illustrates well the remarkable change for the better that may happen in suitable cases.

Pte. E. L., 29 years. Admitted to 31 B.S.H., on Dec. 10th, 1917, under the care of Captain Waller, R.A.M.C. History: Slight dysenteric attacks in August and October, 1917. The present attack started in December, 1917. After admission he had four weeks' treatment with emetine. On Dec. 11th and 26th, *Entamœba histolytica* found in stools. Jan. 6th: Poor general condition. Tongue foul. Entire course of colon tender. Feb. 6th: Examination of stools negative to *E. histolytica*. Feb. 21st: There had been steady deterioration in spite of three 12-day courses of emetine. Pulse-rate 130. Stools varied between 6 and 10 per diem—nearly every one showed blood and sloughs.

On this date, on the advice of Colonel Willcox, cæcostomy (valvular) was performed. Immediate and rapid improvement occurred on beginning irrigation from above. Patient was evacuated on May 6th, 1918, having put on much weight.

No one who has seen a case like the above can doubt the efficacy of the operation in such patients. If the colon is so diseased that it is desired to prevent the fæcal contents passing through it, open cæcostomy (cæcal anus) enterostomy, or ileo-sigmoid anastomosis may be performed.

Open cæcostomy (i.e., freely opening the cæcum after attaching it to the abdominal wall) has been advocated at different times during the past 30 years, but not often practised. Herrick, however, in 1909 published an account of 11 cases all practically moribund, of which he saved 4 by an open cæcostomy.

Enterostomy has been suggested for those cases in which the cæcum is badly diseased. The only case in which I have known this to be done was under the care of Mr. McNeill Love at Amara. A cæcostomy was first performed and proved of benefit only for a short time. An abrupt relapse occurred, so an enterostomy six inches from the cæcum was performed. The lower end of the small intestine was closed. Improvement was immediate, and the patient put on 2 st. weight in six weeks. The enterostomy was closed three months after the second operation by lateral implantation into the ascending colon. In Mr. Love's opinion complete enterostomy is the best operation for chronic dysentery which does not react to treatment, for in no other way can complete rest of the colon be attained, and such rest, he thinks, is of more importance than irrigation. (Mr. Love tells me that Mr. Grey Turner suggested the idea to him.)

I cannot find any cases which have been treated by ileo-sigmoidostomy, though Carey Evans puts forward the opinion that the ideal treatment is by such an anastomosis combined with appendicostomy. But a short circuit would not divert the whole contents of the bowel as would complete enterostomy or enteric anus.

So far as the limited but collective experience enables us to judge one would conclude that for the colonic pus-sac of chronic dysentery, or for any chronic toxæmic ulcerative colitis, appendicostomy or valvular cæcostomy should first be tried, and if no improvement occurred after irrigation an open cæcostomy or, better still, enterostomy with complete division of the small gut would be advisable. Lateral anastomosis whilst the colitis was still active would hardly be a wise procedure.

(v.) *Cicatrisation and Stricture.*

It is surprising that so few cases of post-dysenteric stricture of the large bowel are on record. Perhaps it is because the milder degrees of ulceration heal without undue contraction, whilst many of those with gangrene of large portions of the mucous membrane, which would be followed by stricture,

lead to a fatal issue. On this point Sir Leonard Rogers has kindly written me. He writes:—

> "I have never seen stricture of any part of the large bowel follow dysentery, nor do I know of any such case in our museum, which dates back over 80 years and contains some five thousand specimens, including numerous dysentery ones. This is certainly rather strange in view of the extent of damage to the bowel, but may perhaps be partly explained by the more extensive lesions of amœbic dysentery being so frequently fatal in the acute stage while in the bacillary the lesions do not extend deeper than the submucous coat as a rule."

Davidson saw six cases of stricture of the colon during 30 years of experience of dysentery in India. No case of stricture was recorded in the large number of cases in the American Civil War, though we have no proof that the cases were followed through.

In text-books it is customary to describe dysenteric stricture of the rectum as if it were a fairly common occurrence, but in spite of the large numbers of cases of dysentery in the late war it is rare to find a rectal stricture resulting therefrom.

It is well recognised, however, that persons who have been the subject of severe dysentery may after complete recovery still suffer from minor derangements of the bowel. I would hazard the suggestion that some of these may be due to irregular or undue cicatrisation of the colon, if not to definite stricture.

(vi.) *Perinephric Abscess.*

It is with some hesitation that I put perinephric abscess as a complication of dysentery, but in a series of 11 perinephric abscesses (not consequent on gross disease of the kidney) which I have treated in the past two years four had a previous history of dysentery or diarrhœa. In two of these amœbic cysts were found in the fæces. The organism in the abscesses was always the staphylococcus. It is, of course, possible that the septic organism would escape through the diseased gut wall where it was unprotected by peritoneum and so cause an abscess in the loose cellular tissue round the kidney. Treatment of such abscesses by incision and drainage at the outer border of the erector spinæ is an easy and satisfactory procedure.

The remote effects of the organism or toxins are many and serious.

LESIONS CAUSED BY THE AMŒBA HISTOLYTICA.

We must first consider the lesions caused by the *Amœba histolytica*: hepatitis, liver abscess, renal abscess, cerebral abscess, splenic abscess, cystopyelitis.

Amœbic Hepatitis.

Amœbic hepatitis is a common complication of amœbic dysentery, as a rule easy to diagnose and readily amenable to treatment by emetine. Some cases are mistaken for cholecystitis and some may be confused with malarial hepatitis, but reaction to the specific treatment will soon confirm or reject the diagnosis. The symptoms are pain in the hepatic area and possibly right shoulder region, enlargement of the liver, and fever; there is usually a leucocytosis and there may be slight jaundice. A rigor may occur at the onset. The amœbæ cannot always be found in the stools at the time of the hepatitis, but usually there is a history of dysentery. The diagnosis is made sure by disappearance of the symptoms under treatment by emetine. It is possible to watch the decrease in size of the liver and the increase in movement of the diaphragm by X ray examination with the fluorescent screen. At Nasiriyah, by the courtesy of the radiologist (Captain J. L. Sen, I.M.S.), I was able to do this with advantage.

Liver Abscess.

The subject of liver abscess can no more than be touched upon in this brief review. The prevention of amœbic abscess of the liver is now a feasible project, thanks to the researches, clinical acumen, and sound judgment of a Fellow of this College (Sir L. Rogers), whose successful advocacy of the value of emetine would alone entitle him to the thanks of grateful humanity. If every case of amœbic dysentery be treated early and thoroughly by emetine, and if hepatitis be similarly treated at its inception, then surgeons will have but few liver abscesses to treat.

The early symptoms of liver abscess are those of hepatitis. In addition there is usually some congestion of the right lung base, and often wasting and anæmia. Fever is often slight and variable. The abscess may be distinguishable by X rays and may cause a swelling either of the chest wall or in the right loin or epigastrium; it may burst into the lung or some abdominal viscus. The common position of a single abscess is in the upper part of the right lobe.

In differential diagnosis one has always to bear in mind malaria, typhoid fever, paratyphoid, perinephric abscess, pleural effusion, cholecystitis; appendicitis and enlargements of the liver from other causes. Most surgeons agree that exploration by the needle is the only certain method of diagnosing the presence of an abscess.

The treatment of liver abscess is now a successful procedure. The exact method adopted varies, but there are two objects aimed at in all the methods: (1) evacuation of the abscess cavity; (2) destruction of the *Entamœba histolytica* in the walls of the abscess cavity.

The abscess may be evacuated either: (*a*) by aspiration, repeated several times if necessary; (*b*) by puncture and insertion of a small metal or rubber tube for institution of siphon drainage; (*c*) by free incision, resection of rib, and insertion of large drainage-tube.

Good results have been published by each method. I do not think that the method of evacuation matters very much so long as the amœbic infection is also dealt with. This can be done by the injection of a solution of quinine, or of emetine, into the abscess cavity; or simply by the subcutaneous or subfascial injection of emetine solution (gr. 1 daily for 10 or 14 days). I believe that it is due to simultaneous treatment by emetine that the results in drainage of liver abscess are more speedy and satisfactory. Though personally I am in favour of free drainage of liver abscess, I make the proviso that every time the surgeon dresses the case (and he should not depute the dressing save to another surgeon) aseptic precautions should be as strict as for an abdominal section. If that be insisted on and if emetine be given, I think open treatment of the abscess the most satisfactory.

When there are several abscesses in the liver the prognosis is extremely grave and surgical intervention is often if not usually unsuccessful. However, if taken in an early stage there is evidence to show that multiple liver abscesses may clear up completely under emetine (Rogers).

Unfortunately, it is not usually possible to diagnose multiple liver abscesses in the early stage. Of 16 cases of liver abscess which have come under my personal care 2 ruptured into the lung and got well under administration of emetine, 2 were treated by aspiration and injection of quinine hydrochloride into the cavity, 2 by aspiration and administration of emetine, and 10 by free drainage of the abscess combined with subcutaneous emetine. There were two deaths, one patient who had multiple abscesses and another who, after insertion of a drainage-tube, had to be dressed and nursed in a very dirty hut made of matting, and who consequently got secondary infection of the abscess. All the later cases were treated in a hospital in Bagdad, which in many respects would compare favourably with many of our hospitals in England, and where aseptic surgery could be practised with safety.

Rarer Complications.

Rarer complications of amœbic dysentery are cerebral, renal, or splenic abscesses. Abscess of the brain never occurs apart from liver abscess. Kartulis and Jacob say that it occurs in 3 per cent. of cases of liver abscess, but Legrand thinks it still less common. The abscess is usually single. The symptoms are those usually associated with brain abscess, depending for focal symptoms upon the site of the lesion. No case of this nature has come under my observation.

Still more rarely amœbic abscesses of the kidneys and spleen have been reported. Amœbæ have also been found in the urine and a cystitis and pyelitis ascribed to their pathogenic action.

SURGICAL COMPLICATIONS DUE TO BACILLARY DYSENTERY.

The remote complications of surgical interest due to bacillary dysentery are: septicæmia, arthritis, conjunctivitis, iritis, pyæmia, myalgia, fibrositis, periostitis.

Septicæmia.

This I mention first, not because it is common, but because the fact of its occurrence points the way to the cause of the other complications. Several observers have obtained *B. Shiga* from the blood. In 1918 Maer obtained a pure blood culture of the bacillus during life in a patient who had marked cerebral symptoms but no abdominal pain, straining, or tenesmus. The specific organism was not obtained from the stools, but was recovered from scrapings of the bowel mucosa after death. Waller has recorded a case in which *B. Flexner* was grown in pure culture from the blood taken shortly before death. So it is possible that many of the remote complications are due to the effect of the bacilli transported via the blood stream.

Arthritis.

Joint affections have for long been known to occur in certain dysenteric patients, but till the late war scant attention had been paid to the condition. Shiga, in his article in Osler and McCrae's System, gives but a line to arthritic symptoms. But a great mass of evidence has recently accumulated to put our knowledge on a surer foundation. Several papers on the subject have recently been written (notably one by Graham), and I can but summarise the conclusions which are agreed upon by most (if not all) observers.

Ætiology.—The lesion is generally due to the *B. Shiga* or its toxins. In most cases the fluid withdrawn from the joint is sterile, but occasionally the bacillus is recovered. Dr. William Campbell (who had a very large experience of dysentery from the time of the Dardanelles campaign till 1919) kindly informs me that he examined the fluid from 18 cases of arthritis, obtaining the *B. Shiga* from 1 case but finding the remainder sterile. It is difficult to determine whether the condition is due to a metastasis of organisms which soon die out or whether the toxins of the bacteria generally cause it. Probably the latter is nearer the truth, since it is known the *B. Shiga* produces toxins.

Time of onset.—The joint affection usually develops soon after the acute stage of dysentery is over. The day of the disease on which it appears is therefore variable. The onset is frequently associated with imperfect evacuation of the intestine. A careful observer (Captain D. W. Ritchie) writes: "Arthritis usually occurred when the cases were becoming convalescent; as a predisposing cause early constipation was an easy first, and cases treated by frequent doses of tinct. opii, which caused retention of the discharge in the bowel, were very prone to develop arthritis."

Incidence.—About 1 to 2 per cent. of cases of bacillary dysentery develop joint trouble. Waller had 6 cases among 350 patients and G. Singer 7 in 600 patients.

Severity of dysentery.—Though occurring sometimes after very acute cases, it is noteworthy that arthritis frequently developed after very mild attacks of dysentery. Occasionally it has been the development of an arthritis which has led to the discovery of a latent dysenteric infection. Colonel R. E. Kelly has kindly informed me of an epidemic of mild diarrhœa, which was followed in each case by arthritis manifestations coming on 14 to 21 days after the attack. It affected a large number of the personnel of a base hospital and from the similarity of the interval between the diarrhœa and the arthritis in each case he had no doubt that it was a specific organism causing both conditions, though cultivation proved unsuccessful.

Joints affected.—The knees and ankles most commonly, but almost any joint may be affected. Shoulders, elbows, wrists, temporo-maxillary, sterno-clavicular, and rarely the hip-joints, may suffer.

Types of joint affection.—Sometimes there is a mere arthralgia when pain is complained of, but no local sign of disease can be detected. Frequently there is considerable effusion, especially in the knees, though there is no redness or increased heat in the joint. A third and more intractable variety is that in which there is great thickening of the peri-articular structures which leads to considerable limitation of movement of the joint.

General course.—The onset is sudden, ushered in by pain in the joint often of a severe character. Effusion usually follows and the pain subsides. Fever is usually slight, though it may be more pronounced. The condition may very quickly subside, but very often lasts for two to three months, and it may be much longer before the joint recovers full function. A distinguished member of our profession who suffered severely from dysenteric arthritis in the South African War informed me that it was six months before he could walk without assistance, and much longer before he could move with any agility, and even after the lapse of so many years occasional pain and swelling in the knees occur.

Whilst in Mesopotamia I saw six cases of dysenteric arthritis in consultation with Captain Waller and several slighter cases came direct into my surgical wards. I have seen two cases since my return home, and would like to remind my hearers that a history of dysentery will now need to be inquired into in any case of arthritis.

Treatment.—The joints must be rested during the acute stage and benefit may result from counter-irritation. Firm pressure by wool and bandage or by strapping may cause the effusion to subside more quickly. Aspiration may be necessary if the effusion is great and likely to over-distend the joint ligaments. Antidysenteric serum is said by some to benefit the arthritis. After the acute symptoms have passed massage and graduated passive movement should be undertaken. In those cases with thickening round and adhesions within the joint hot-air baths, ionisation, Turkish baths, and other well-recognised methods of treating chronic joint trouble may be tried, but recovery is often slow.

Conjunctivitis and Irido-cyclitis.

One or other of these is a common accompaniment of arthritis. In Graham's series it occurred in about 50 per cent. of the arthritic cases and the same proportion is recorded by Stettner, who remarks that eye symptoms preceded the joint symptoms in one-third of the cases. The conjunctivitis is usually bilateral and clears up readily in a few days under simple treatment. The iritis may lead to adhesions, but usually subsides under treatment by atropine.

Pyæmia.—Remembering the severe ulceration often present in the colon, it is no wonder that sometimes a general septic infection occurs. I saw one patient who at autopsy was found to have streptococcal abscesses in the gall-bladder, kidney, and spleen.

ASSOCIATED DISEASES.

Associated diseases are parotitis, boils and abscesses, thrombosis (gangrene of foot, pseudo-elephantiasis of leg).

Parotitis has been mentioned by many observers as a complication of dysentery. It is an infrequent occurrence, but I had at least one case. Whether the infection gains access from the mouth or, what is quite as likely, gets there via the blood stream from the ulcerated colon we cannot determine, but the inflammation may be severe enough to cause complete necrosis of the gland. According to Shiga, it is usually bilateral and occurs from the third to the fifth week of the disease. If the general symptoms of toxæmia are serious it is essential to incise the parotid freely.

Boils and abscesses may be an accompaniment of dysentery. Shiga mentions two cases of abscess which occurred in convalescence, and Waller states that 9 patients out of 350 developed boils on the convalescence of bacillary dysentery. In one case of Shiga type 28 large boils appeared in successive crops over the buttocks, trunk, axillæ, face, and fingers, with pyrexia for 14 days. Whether the resistance to staphylococci is lowered by the disease or whether it be a case of pyæmia originating in the colon it is difficult to determine.

I wish to express my thanks to all those who so kindly placed at my disposal their valuable knowledge and experience.

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THE LATE MR. D. J. WILLIAMS.—The death of David James Williams took place at his residence at Llanelly, Carmarthenshire, on Feb. 27th, at the age of 66. He received his medical education at University College, London, where later he was demonstrator of practical physiology, qualifying M.R.C.S. in 1877. In 1894 he obtained the Fellowship. He was greatly esteemed in Llanelly, where he had a large practice and was active in public affairs, being a member of the Chamber of Commerce and a medical referee under the Workmen's Compensation Act.

ST. BARTHOLOMEW'S HOSPITAL APPEAL FUND.— A successful bazaar, organised by the Women's Guild, was held in the Great Hall of the hospital on March 4th. A soiree has now been arranged for Saturday, March 20th, at 8 p.m., to be held at the Royal Albert Hall, South Kensington. The artistes appearing are: Miss Carmen Hill, Mr. Ben Davies, Mr. Ivor Foster, Miss Sybil Goodchild, Mr. Lorne Wallet, Master Napoleon Bertrand Eugene, Professor K. Ronay, and Mr. Corelli Windeatt's Orchestra of 90 performers. The hospital is issuing a pleasantly written booklet, describing hospital life from the patient's point of view, in aid of the new nurses' home.

PLEURAL EFFUSION:
ITS CYTOLOGY AND THE RESULTS OF PARACENTESIS.

BY D. S. PAGE, M.B., B.CH.CANTAB., M.R.C.S., L.R.C.P.

WHILE lymphocytic pleural effusions have for some years been regarded as usually tuberculous in origin, opinion is not unanimous as to the cause of effusions in which other cells predominate. Varying views are also held on the indications for paracentesis in tuberculous pleurisy. In the hope of aiding the elucidation of these problems this investigation was undertaken.

The statistics are taken from the notes of patients with pleural effusion who were in the Brompton Hospital for Consumption and Diseases of the Chest in the years 1911 to 1918. The series includes only effusions in which no organism other than the tubercle bacillus was demonstrated, of which there is a record of the cytology and in which the presence of red blood corpuscles is not reported. This last condition, although it seemed necessary to ensure accuracy in the cytology of the effusions, reduced very considerably the number of cases for investigation.

In all 60 cases were investigated. These were divided into six groups as follows: (*a*) 20 cases in which tubercle bacilli were demonstrated in the sputa. (*b*) 8 cases in which there was clinical evidence of pulmonary tuberculosis, but tubercle bacilli were not demonstrated in the sputa. (*c*) 22 cases in which there was no evidence of pulmonary disease. Of these most were regarded as tuberculous. (*d*) 2 cases of hydropneumothorax. (*e*) 6 cases of mediastinal neoplasm. (*f*) 2 cases associated with cardiac and renal disease respectively.

Cytology.

On the subject of cytodiagnosis in Allbutt and Rolleston's "System of Medicine"[1] it is written, "The pioneers in this work were Widal and Ravaut, who, as a result of their observations, stated the following cytological formula: When the dominant cells present in a pleural effusion are small lymphocytes the probable cause of the inflammation is the tubercle bacillus; when the dominant cells are the polymorphonuclear leucocytes the probable cause is some pyogenetic micro-organism.—If the effusion from a tuberculous pleurisy is examined very early, the predominance of the lymphocyte is less marked than as the effusion progresses. The polymorphonuclear cells may even be present in excess; Dr. Gulland considers that this is limited to the first three days of the effusion. To these original conclusions of Widal and Ravaut's little has since been added by other observers."

In the series under discussion, in only six cases were more than half the cells polymorphonuclear neutrophiles. Of these, four had tubercle bacilli in the sputa. Of the two remaining, one (Case 58) was associated with septic pneumonia in a patient with mediastinal lymphosarcoma; the other (Case 50) was regarded as of rheumatic origin. This patient, admitted with a history of pain in the joints of one week's duration, had pericarditis in addition to double pleural effusion. In the tuberculous cases the duration appears to have been, in Case 1, eight days; in the others (Cases 9, 11, and 18) probably some months. Dr. Roodhouse Gloyne considers that the predominance of the polymorphonuclear neutrophilic cell in a tuberculous pleural effusion is usually due to pneumothorax, though this may not have given rise to physical signs. The finding of tubercle bacilli in the fluid in Case 9 lends some support to this view, so far as that case is concerned; for tubercle bacilli are commonly more numerous in hydropneumothorax than in effusions not communicating with the lung. Of two cases (51 and 52) diagnosed as hydropneumothorax, tubercle bacilli were found in the effusion of one, but in both the enumeration showed a preponderance of mononuclear cells, the polymorphonuclears being 15 per cent. and 6 per cent. respectively.

Gruner states[2]: "The appearance of polynuclear cells in an exudate may be looked on as the expression of a general reaction on the part of the individual against a more severe infection. The more virulent the infection the more decided will the polynucleosis be." Three of the cases under discussion had severe general reactions. The fourth, however, in which tubercle bacilli were demonstrated in the fluid, was apyrexial throughout the period of his stay in hospital, and on discharge was sent to Frimley Sanatorium.

The remainder of the effusions of tuberculous or of unknown origin showed a predominance of small mononuclear cells, with the exception of Case 49, in which 80 per cent. of the cells were coarsely granular eosinophiles. While this patient was in hospital his blood contained at different times 5 per cent., 7 per cent., and 12 per cent. of eosinophiles. There was no history of asthma, no evidence of infection by worms, and, indeed, no reason was found for the eosinophilia. This patient was good enough to come to the hospital for examination five years later, when he appeared to be enjoying good health. His weight had increased by 13 lb. since his discharge from hospital. He had no cough nor expectoration, but complained of occasional pain in the chest. On examination no signs suggestive of pulmonary tuberculosis were found. His blood contained 6500 leucocytes per c.mm., of which 5 per cent. were coarsely granular eosinophiles.

The effusion of Case 57 contained 40 per cent. eosinophilic cells. This was from a patient who died shortly afterwards from a columnar-celled carcinoma involving the left lung and the mediastinum. In the right iliac fossa was a large cyst, behind which the ilium and sacrum were found to be eroded; sections of the cyst wall appeared to be carcinomatous. The blood of this patient contained 7 per cent. eosinophiles. No parasites nor ova were found in the stools.

The presence of these cells is recorded in only two other cases: Case 14, tuberculous, had 2 per cent., and Case 50, regarded as rheumatic in origin, had 2·5 per cent. The two cases in which eosinophilic cells predominated were probably non-tuberculous. This is in conformity with the experience of Barjon and Cade,[3] who showed by inoculation experiments that their eosinophilic effusions were not tuberculous.

Basophilic cells were reported to be present in only four cases, and in these in small numbers. The eosinophilic effusion (Case 49) contained 3·8 per cent. basophilic cells, and that of the supposedly rheumatic case (50) 1·75 per cent. In Case 60, chronic nephritis, 1 per cent. of these cells was present. The only tuberculous effusion in which basophilic cells were found contained 0·6 per cent. only of these cells. This case was 28, in which the signs of pulmonary tuberculosis were not definite. The significance of these cells is not known.

The proportion of large mononuclear cells was very variable but, except in the two cases of hydropneumothorax, in which large mononuclears formed 31 per cent. and 26 per cent. respectively of the total cells, in none of the effusions of tuberculous origin was it higher than 23 per cent. Among the growths the highest number reported for this cell was 56 per cent., and even in the case of arteriosclerosis with heart failure it was only 63 per cent.

Dr. Roodhouse Gloyne[5] considers that hydrops pleuræ of renal origin more nearly approaches the character of an exudate than that of a transudate. Only one case (No. 60) occurred in this series. In this the cells were polymorphonuclears 24 per cent., small mononuclears 55 per cent., large mononuclears 20 per cent., basophiles 1 per cent. From this patient, who was suffering from chronic interstitial nephritis, the fluid had previously been drawn off weekly for eight weeks.

In the summary of his paper on Cytodiagnosis, Athole Ross[4] states: "It will be unnecessary in future to have recourse to animal experiments to prove the existence of tuberculous pleurisy if a well-marked lymphocytosis has been obtained." It is now recognised, however, that in some effusions associated with new growths lymphocytosis is present. Of six patients in this series suffering from mediastinal growths, in three over 80 per cent. of the cells of the effusions were small mononuclears. In Case 53, lympho-sarcoma invading the left pleura, the cells in the effusion at the first examination had been: large mononuclears 56 per cent., small mononuclears 44 per cent. Three months later 96 per cent. were small mononuclears. This is a striking example of the supposed tendency in effusions for the proportion of small mononuclear cells to be progressively increased. Little evidence of this tendency is obtained from a comparison of the cytology with the duration of effusion in this series. None were examined earlier than five days from the time of onset of pleurisy. Two (Cases 14 and 26) were examined on the fifth day; they contained 68 per cent. and 58 per cent. respectively of small mononuclear cells. In Case 34, aspirated on the tenth day, 92 per cent. of these cells were found, but in cases of much longer duration the predominance of the small mononuclear was frequently less.

Results of Paracentesis.

In Allbutt and Rolleston's "System of Medicine" (1909) it is recommended that in pleural effusions complicating pulmonary tuberculosis paracentesis should be avoided, unless the quantity of fluid be so great as to cause embarrassment of the respiration. In uncomplicated pleural effusion, paracentesis should be performed in all cases presenting an effusion so great as to fill the pleura; in those attended by any distress of breathing, and in those showing no signs of absorption after a week or ten days of treatment by drugs. The treatment of primary tuberculous effusions has tended recently to become more conservative. Rest of a part of the body affected by tuberculosis has been found useful in other regions, notably in the joints; it is reasonable to expect it to be beneficial in pleurisy. In addition to this, the opinion has gained ground that some constituent of the fluid is useful in combating the disease. Gilbert of Geneva, in 1896, advocated the withdrawal of a small amount of fluid from the pleural cavity and the inoculation of 2 c.cm. into the patient's own subcutaneous tissue. A. Jousset, in 1912, recommended

TABLE I.—*Twenty Cases in which Tubercle Bacilli were Demonstrated in the Sputum.*

No of case.	Initials.	Age	Sex	Cells, &c., in pleural fluid.						Probable duration of effusion before examination.	Paracentesis.	Amount in ounces.	Temperature before paracentesis.	Temperature after paracentesis.	Condition of patient on discharge from hospital.
				P	S	L	E	B	T B						
1	J. M.	46	M.	75	12	13	0	0	0	8 days.	+	33	+	Higher one evening.	Worse.
2	S. D.	18	M.	7·5	75·5	17	0	0	0	16 ,,	0	0	+	...	,,
3	J. L.	27	M.	2	86	12	0	0	0	19 ,,	+	30	+	Unaltered.	Stationary (discharged following day).
4	F. W.	22	F.	1	81	18	0	0	0	?	0	0	+	...	Worse.
5	A. M. L.	30	F.	1	78	21	0	0	0	21 ,,	+	30	+	Unaltered.	Improved.
6	E. J. H.	39	M.	1	87	12	0	0	0	21 ,,	0	0	+	...	,,
7	S. B.	40	M.	16	80	4	0	0	0	5 weeks.	+	60	–	Slight rise, 2 days.	,,
8	R. C. S.	39	M.	2	85	13	0	0	0	?	+	16	99° occasionally.	Higher for 5 days.	Death 16 days after aspiration.[3]
9	J. J. T.	36	M.	88	4	8	0	0	+	2 months.	+	25	–	...	Improved.
10	A. Mc. L.	23	M.	7	70	23	0	0	0	11 days.	+	20	+	Fall 1° for 2 days. T. normal in 7 weeks.[1]	Stationary.
11	G. C.	56	M.	60	27	13	0	0	0	? months.	+	11	+ +	Higher following day, fall after.[2]	Death 3 months after asp.[4]
12	R. E. D.	41	M.	0	84	16	0	0	0	?	+	6	+	Unaltered.	Stationary.
13	J. H. A.	35	M.	4	83	13	0	0	0	1 month.	0	0	+	...	Improved.
14	T. W.	24	M.	18	68	12	2	0	0	5 days.	+	20	+ falling.	Fall continuous.	,,
15	W. C.	49	M.	2	86	12	0	0	0	6 weeks.	+	72	+ 100	Fall same day to 98·6°. T. remained normal.	,,
16	A. C.	31	M.	5	85	10	0	0	0	?	0	0	+	...	Death 3 months after exploration.
17	J. K.	40	M.	21	71	8	0	0	0	7 weeks.	0	0	–	...	Improved.
18	W. R.	38	M.	54	35	11	0	0	0	6 months.	+	29 30	+2 months' duration.	Slight fall before asp., more pronounced after.	,,
19	G. F. F.	25	F.	10	73	17	0	0	0	1 month.	0	0	+	...	Death.
20	E. E.	21	F.	18	82	0	0	0	0	?	0	0	+	...	Worse.

[1] Fall had commenced before aspiration. [2] This had commenced before aspiration. [3] Extensive pulmonary and intestinal disease. [4] P.M., lungs caseous at apices; miliary elsewhere.

TABLE II.—*Eight Cases in which there was Clinical Evidence of Pulmonary Tuberculosis, but Tubercle Bacilli were not Demonstrated in the Sputum.*

21	W. R. B.	24	M.	3	93	4	0	0	0	?	0	0	+	...	Stationary.
22	E. P.	30	M.	0	93	7	0	0	0	1 month.	0	0	+	...	Improved.
23	E. G. H.	8	F.	13	77	10	0	0	0	?	0	0	+	...	,,
24	F. M.	24	M.	12	74	14	0	0	0	14 days.	+	60	+	Temporary rise followed by gradual fall.	Stationary.
25	J. E.	33	M.	6	78	16	0	0	0	6 weeks.	0	0	+	Higher same evening.	Improved.
26	C. F. R.	$1\frac{6}{12}$	M.	26	58	16	0	0	0	5 days.	0	0	+	...	Death 12 days later.
27	E. J. T.	43	M.	28	65	7	0	0	0	2 weeks.	+	30	+ falling.	Fall continues.	Improved.
28	S. R.	29	M.	2·8	75·3	21·3	0	0·6	0	?	0	0	+	...	,,

TABLE III.—*Twenty-two Cases in which there was no Evidence of Pulmonary Disease.*

29	M. L. T.	15	F.	1	98	1	0	0	0	6 months.	0	0	+	...	Improved.
30	S. H.	27	M.	8	77	15	0	0	0	?	0	0	–	...	,,
31	J. T. P.	24	M.	8	80	12	0	0	0	3 months.	+	3½	+	Unaltered.	,,
32	A. R.	33	F.	12	83·5	4·5	0	0	0	3 weeks.	0	0	+	...	,,
33	W. H.	24	M.	1	88	11	0	0	0	1 month.	+	33	+	Fall to 99° on following day.	,,
34	A. G.	34	F.	3	92	5	0	0	0	10 days.	+	5	+	Higher one evening, followed by gradual fall.[5]	
35	E. C.	53	F.	12	83	5	0	0	0	4 months.	+	10 60	+	Unaltered.[6]	,,
36	E. W.	6	F.	5	92	3	0	0	0	?	0	0	+	...	,,
37	H. J.	13	M.	11	80·5	8·5	0	0	0	?	+	28	–	99° two evenings.	,,
38	H. W.	41	M.	20	65	15	0	0	0	?	+	30	+	Slightly higher two evenings	Stationary.
39	T. M. D.	19	M.	33	58	9	0	0	0	5 weeks.	+	16	+	Unaltered.	Improved.
40	G. S.	20	M.	10	70	20	0	0	0	3 months.	+	7	–	Unaltered.	,,
41	B. W.	21	F.	10	68	22	0	0	0	5 weeks.	+	50	+	Raised 1° for two evenings, then as before paracentesis.	,,
42	J. P.	58	M.	28	56	16	0	0	0	4 months.	0	0	+	...	,,
43	J. S.	16	M.	0	88	12	0	0	0	?	+	56	+	Gradual fall.[7]	,,
44	W. H.	12	M.	3	88	9	0	0	0	4 months.	0	0	+	...	,,
45	F. H.	29	M.	8	92	0	0	0	0	15 ,,	+	52 80 25	–	Unaltered.	Worse.
46	F. B.	25	F.	2	94	4	0	0	0	4 weeks.	0	0	+	...	Improved.
47	D. U.	16	F.	18	67	15	0	0	0	2 months.	0	0	+	...	,,
48	S. S.	29	M.	12	82	6	0	0	+	?	0	0	+	...	Death (tuberculous peritonitis).
49	J. J. S.	37	M.	1·2	10	4·8	80·2	3·8	0	6 weeks.	0	0	+	...	Improved.
50	F. M.	27	M.	58·5	13·25	24	2·5	1·75	0	?	0	0	+	Higher for 12 days after exploration.	,,

[5] Admitted two days previously. [6] Pyrexia for nine months after paracentesis. [7] Admitted two days previously.

TABLE IV.—*Two Cases of Hydropneumothorax (Tubercle Bacilli were Present in the Sputum of both Cases).*

51	A. S.	35	M.	15	54	31	0	0	0	?	+	75	+	Higher (99° before, 101 after paracentesis).	Death 19 days later.
52	W. K.	27	M.	6	68	26	0	0	+	4 days.	+	40	–	+ for 2 days.	Worse.

Explanation of Tables.

P, neutrophilic polymorphonuclear cell.

S, small mononuclear cell.

L, large mononuclear cell; includes the large lymphocyte and the endothelial cell.

E, coarsely granular eosinophilic cell.

B, basophilic cell. The numbers of cells are percentages.

Paracentesis +, paracentesis performed.

Paracentesis 0, paracentesis not performed. In these cases a small quantity of fluid was removed for examination.

T.B. +, tubercle bacilli demonstrated.

T.B. 0, tubercle bacilli not demonstrated.

The duration of an effusion before examination is inferred from the history of the patient. In many cases its accuracy is not certain.

Temperature + signifies temperature above 98·6° F.

,, – ,, ,, not above 98·6° F.

C.P.T. signifies chronic pulmonary tuberculosis.

TABLE V.—*Six Cases of Mediastinal Neoplasm.*

No. of case.	Initials.	Age.	Sex.	Cells in pleural fluid. P.	S.	L.	E.	B.	Duration.	Paracentesis.	Amount in ounces.	Temperature before paracentesis.	Temperature after paracentesis.	Diagnosis.
53	A. H.	40	M.	0	44	56	0	0	?	+	60	–	+ for 2 days.	Lymphosarcoma, mediastinal, involving left pleura.
	11 weeks later.			10	42	48	0	0						
	10 days later.			2	96	2	0	0						
54	T. G.	46	M.	46	41·75	12·25	0	0	?	+	30	–	+ for one evening.	Ditto, involving right pleura.
55	E. S.	32	M.	9·5	83·5	7	0	0	?	+	14	+	Unaltered.	Ditto, involving left pleura.
56	A. H.	35	M.	9	81	10	0	0	?	+	50 60 60	+	,,	Lymphadenoma, retroperitoneal and mediastinal.
57	J. B.	40	F.	18	20	22	40	0	?	+	40 18	+	Higher for 10 days.	Carcinoma, left lung and mediastinum.
58	E. P.	56	F.	75	20	5	0	0	?	0	0	+	—	(*a*) Lymphosarcoma. (*b*) Septic pneumonia.

TABLE VI.—*Two Cases Associated with Cardiac and Renal Disease Respectively.*

No. of case.	Initials.	Age.	Sex.	Cells in pleural fluid. P.	S.	L.	E.	B.	Duration.	Paracentesis.	Amount in ounces.	Temperature before paracentesis.	Temperature after paracentesis.	Diagnosis.
59	H. A.	68	M.	13	24	63	0	0	?	+	53	–	—	Arterio-sclerosis. Heart failure.
60	P. M.	52	M.	24	55	20	0	1	?	+	80	–	—	Chronic interstitial nephritis.

TABLE VII.—*Average Cell Counts in each Group (Groups 1 to 5).*

—	P.	S.	L.	E.	B.
Group 1 (tubercle bacilli in sputum)	19·6	67·6	12·7	0·1	0
,, 2 (clinically pulmonary tuberculosis)	11·4	76·7	11·9	0	0
,, 3 (no evidence of pulmonary tuberculosis)	12·0	73·9	10·1	3·75	0·25
,, 4 (hydropneumothorax) ...	10·5	61·0	28·5	0	0
,, 5* (neoplasmata)	13·5	58·3	22·5	5·7	0

* Case 58 is not included in this average.

TABLE VIII.—*Condition of Patients on Discharge from Hospital.*

A. *Pleurisy complicated by Pulmonary Tuberculosis* (*Groups 1 and 2*).

Paracentesis performed ...	(14)	Paracentesis not performed	(14)
Improved	7	Improved	7
Stationary	4	Stationary	1
Worse	1	Worse	3
Died	2	Died	3

B. *Pleurisy uncomplicated by Pulmonary Tuberculosis* (*Group 3*).

Paracentesis performed ...	(11)	Paracentesis not performed	(11)
Improved	9	Improved	10
Stationary	1	Stationary	0
Worse	1	Worse	0
Died	0	Died	1

Note.—The death in Group B was from acute tuberculosis; the peritoneum was involved as well as the pleura. Several cases in Group A had extensive and active pulmonary disease at the time of aspiration.

taking the serum from the effusion of a patient suffering from acute serofibrinous pleurisy and injecting it subcutaneously into cases of chronic tuberculous pleurisy. Heteroserotherapy has been used at Frimley Sanatorium[6] in a small series of advanced cases of pulmonary tuberculosis. In order to avoid the loss of constituents of the effusion or their destruction by heat the pleural fluid for the injection was citrated, and its sterilisation was effected by carbolic acid. The results were encouraging.

The writer has been unable to discover any published statistics on the immunity reactions of tuberculous pleural effusions (see note at end). In 1911, at the Brompton Hospital, the tuberculo-opsonic index was worked out in a small series of pleural effusions; the results are given in Table IX. In the majority of tuberculous cases the opsonic index of the fluid was lower than that of the blood. Of those in which the index was higher in the fluid, two cases were recent and a third had been aspirated three days previously. These figures suggest that a recent tuberculous pleural effusion may be rich in antibodies, and that these may be lost to a large extent in the course of time.

TABLE IX.—*The Tuberculo-opsonic Index of 18 Pleural Effusions.*

A. *Cases with Tubercle Bacilli in the Sputum.*

No.	Clinical diagnosis.	Tuberculo-opsonic index. Blood.	Fluid.
1	Chronic pulmonary tuberculosis.	1·30	0·45
	,, ,, 3 days later.	0·40	0·90
2	Chronic pulmonary tuberculosis.	1·20	1·10
3	,, ,,	0·70	0·64
4	,, ,,	0·93	0·71
5	C. P. T. hydropneumothorax (recent).	1·10 0·95	1·25 1·05
6	C. P. T. hydropneumothorax (old).	1·09	0·25
7	,, ,,	0·89	0·44
8	C. P. T. and mediastinal sarcoma.	0·90	1·27

Remarks.—Case 1.—Paracentesis, 33 oz. 2. Recent. 5. Tubercle bacilli found in effusion on both occasions. 8. Recent.

B. *Doubtful Tuberculous and Non-tuberculous Cases.*

No.	Clinical diagnosis.	Blood.	Fluid.
9	Acute tuberculous pleurisy.	1·50	0·80
10	? nature; larynx probably tuberculous.	0·84	0·61
11	Polyserositis.	1·32	0·60
12	C. P. T.	1·60	0·90
13	? tuberculous.	1·06	0·73
14	? N. P. S. of tuberculosis.	1·11	1·03
15	Chronic renal disease: hydrothorax.	0·90	0·90
16	Mediastinal lymphosarcoma.	1·10	0·46
17	,, ,,	1·07	1·10
18	,, ,,	0·90	0·70

Remarks.—9. Recent. 12. Autopsy held. 15. Autopsy held. 17. Fluid aspirated also four months previously. 18. Specimen of effusion obtained 14 hours after death.

An attempt was made to discover the effects of paracentesis from a study of the notes of the series of cases of which the cytology has already been discussed. Points especially looked for were changes in the temperature, pulse-rate, and weight of the patient; his condition on discharge from hospital was noted.

Effect on Temperature, Pulse-rate, and Body-weight.

In the majority of cases little or no alteration in the temperature chart occurred as the result of paracentesis. In most cases pyrexia was of two or three months' duration, whether the fluid had been withdrawn or not. In one (Case 35) a high temperature was recorded for nine months after aspiration. A fall in temperature following the withdrawal of fluid occurred in a few instances, the most striking being Cases 15 and 33. In the former it fell to 98·6° a few hours after aspiration, in the latter to 99° on the day following it, in both remaining about normal. In Cases 34 and 43, where there was a gradual fall of temperature after aspiration, the patients had been in hospital only two days before the removal of fluid; the fall in temperature may well have been due to causes other than paracentesis. In six other charts, all from cases complicated by pulmonary tuberculosis, a gradual fall of temperature was noticed, but in these a slight fall had occurred before the operation.

In 11 cases there was some rise of temperature; in three on the day only on which the pleura was punctured; in six on the following day; while in Case 8, extensive pulmonary and intestinal tuberculosis, the pyrexia continued for five days, and in Case 50, probably rheumatic, for 12 days. It is probable that the rise of temperature on the same evening is often due to a nervous cause, but the other cases may be instances of auto-intoxication, of which Dr. M. Paterson[7] states there is a danger in aspirating tuberculous pleural effusions. A similar rise of temperature, lasting one, two, and ten days respectively, occurred in three of the cases associated with growths; in these, too, it may possibly have been due to the absorption of toxins.

Pulse-rates were very variable both before and after paracentesis; no change in rate could be definitely ascribed to the operation.

In most cases the weight of the patient seemed not to be affected (beyond that resulting from the loss of fluid). In Cases 31 and 45, both uncomplicated by pulmonary tuberculosis, the patients, who had been gaining weight before, began to lose it again about the time of aspiration. In no case did a gain in weight seem clearly attributable to paracentesis.

The condition on discharge from hospital, so far as it can be summarised for each patient in one word, is shown in the tables. It shows little difference between the condition of patients on whom paracentesis had been performed and those on whom it had not been performed. No complications resulting from paracentesis, such as hæmorrhage, pneumothorax, and serous expectoration occurred, nor were any cases of sudden death noted.

Summary.

The small number of the cases investigated, and their variability in relation to both cytology and results of paracentesis, make it impossible to draw any conclusions. The following points, however, are suggested or emphasised:—

1. A predominance of polymorphonuclear neutrophilic cells occurs not uncommonly in chronic pleural effusion complicating pulmonary tuberculosis. When it occurs, in the absence of secondary infection of the fluid, it suggests the possibility of hydropneumothorax being present; probably it may occur without this complication as the result of a virulent tuberculous infection.

2. A predominance of small mononuclear cells is usual in tuberculous pleural effusions. It is not uncommon in effusions associated with neoplasms. It may occur in renal cases.

3. Effusions in which coarsely granular eosinophilic cells are found in large numbers are probably not tuberculous.

4. Basophilic cells occur rarely, and only in small numbers.

On theoretical grounds it seems better to reserve paracentesis for the relief of urgent symptoms. In the analysis of this series of cases no clear evidence is obtained either in favour of or against paracentesis.

For permission to use the pathological records I am indebted to Dr. A. C. Inman, superintendent of the laboratories at Brompton Hospital. To him and to Dr. Roodhouse Gloyne, pathologist to the City of London Hospital for Diseases of the Chest, my thanks are due for suggestions and advice.

Note.—Since the above was written my attention has been drawn to two reports on immunity reactions obtained in small numbers of tuberculous pleural effusions. In one[8] the complement-fixation test for tuberculosis was done on the sera of four primary pleural effusions in which there was cytological evidence of tuberculosis. The results were positive in all cases. The blood serums of these patients were negative in two cases; in the other two positive, but less strongly so than those in the effusions. In the other[9] the precipitin reaction for tuberculosis was done on 22 cases with the following results:—

In 4 known tuberculous cases reaction was … … … … … … … …	positive in 3. negative in 1.
In 14 probably tuberculous cases reaction was … … … … … …	positive in 5. doubtful in 2. negative in 7.

In 4 non-tuberculous controls reaction was negative in 4.

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THE PERIODICITY OF INFLUENZA.

BY B. E. SPEAR, F.S.S.

TWO articles have recently appeared in THE LANCET dealing with the periodicity of influenza epidemics. In the first article Dr. John Brownlee (Nov. 8th, 1919, p. 856) stated that he had deduced from analysis of influenza mortality, by the method of the periodogram, that epidemics recurred in 33-week periods; and he was thus led to forecast an epidemic at the end of January or in February of this year. Dr. C. O. Stallybrass, in the issue of Feb. 14th, finds exemplification of Dr. Brownlee's conclusions in the Liverpool experience since 1890, and, in addition, evidence therein of different strains of influenza bacilli with varying periodicity.

The method of analysis upon which Dr. Brownlee relies can, however, only yield correct results when the data to which it is applied can be described as recurring "waves" of approximately *uniform* "amplitude"; and data conforming to this requirement are practically non-existent in vital statistics. No more unsuitable material for analysis by the periodogram method could have been selected than the highly fluctuating figures of influenza mortality; and, as will be shown, the periodicity of 33 weeks of Dr. Brownlee has no existence in fact.

The weekly deaths in London from influenza for 1890–1919 (the period to which Dr. Stallybrass refers) are readily accessible, being contained in the weekly returns of the Registrar-General for those years, and will serve to illustrate the facts. They are not likely to differ in any material degree from the Liverpool records. The influenza prevalences are readily located, and the week of maximum mortality noted.

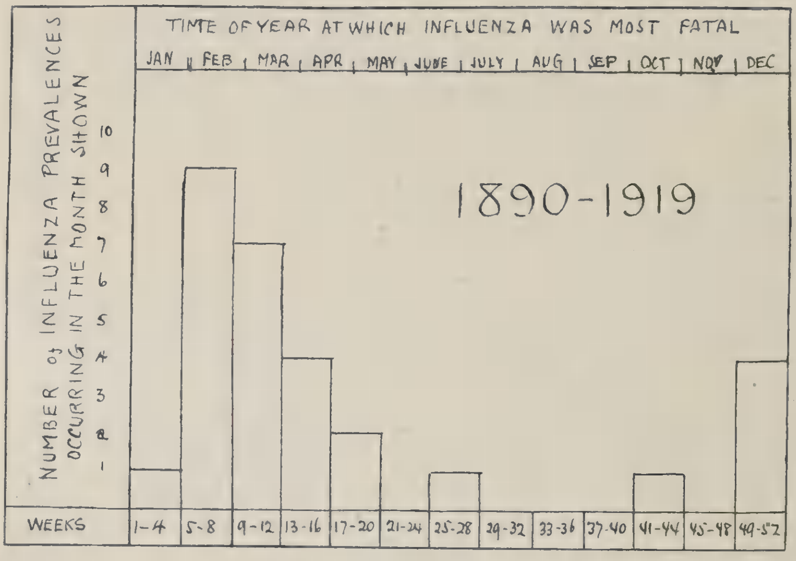
Tests of Periodicity.

Two simple tests have been applied to demonstrate the existence or non-existence of periodicity.

1. The year being divided into 13 four-weekly periods, the frequency with which the observed week of maximum mortality falls into one or other of the 13 groups has been tabulated. The result is shown graphically in Fig. 1. It will be seen that the climax of an influenza prevalence falls more frequently in the second and third four-weekly period than in others—i.e., the months of February and March. If there had been a periodicity of 33 weeks there would have been an equal number of these climaxes in each of the 13 divisions of the year. This test shows, therefore, that there is no period of 33 weeks, but that there is an approximation to a seasonal or annual period; and that the time mentioned by Dr. Brownlee in his forecast—the end of January or in February—is in any year the most likely time for an influenza prevalence.

2. The interval of time by which successive climaxes are separated would, if there were a periodicity of 33 weeks, on an average approximate to this period. There were, in the 30 years 1890–1919, 32 of these climaxes or "peaks" in the influenza mortality; and the frequency of intervals of different lengths which separate adjacent "peaks" is graphically illustrated in Fig. 2.

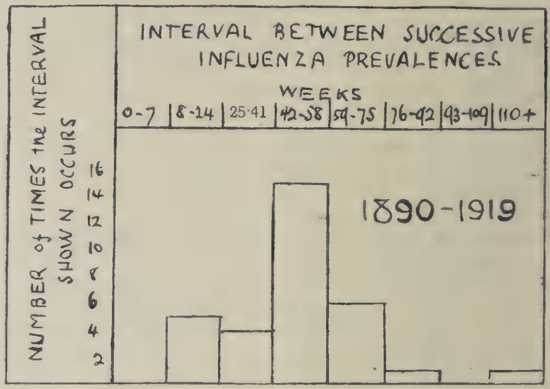
FIG. 1.



It is clear that, were there any periodicity of 33 weeks, there would be a large number of instances in which the interval would fall in the group containing intervals of 25–41 weeks, to which 33 weeks is central. The graph shows, in fact, that a far greater number belong to the group which contains the solar year.

Both tests thus demonstrate the non-existence of the 33-week periodicity.

FIG. 2.



How then is the result found by Dr. Brownlee by the periodogram method to be accounted for? The explanation lies in the fact that the "amplitudes" of the successive "waves" of influenza mortality—the number of deaths during the week of climax—in certain of the epidemics in this period are so great as to overshadow, and practically to eliminate, the smaller outbreaks when the data are subjected to analysis by the periodogram method. In the series of years 1890–99, to which Dr. Stallybrass refers as specifically illustrative of the 33-week periodicity, the mortality in the third week of 1892 (506 deaths), the twentieth week of 1891 (319 deaths), and the tenth week of 1895 (473 deaths) overshadowed all the other climaxes. The distances between these epidemics were 35 and 99 weeks respectively; and obviously if the series of years be cut up into periods of 33 weeks the mass of the 1891, 1892, and 1895 epidemics will fall into approximately the same relative position in the particular 33-week section to which each belongs. Hence the high "amplitude" obtained by Dr. Brownlee for this *spurious* period.

The interval between the two epidemics of 1918 in New York was 30 weeks; in Gothenburg only 10 weeks. Between these two extremes all kinds of intervals occurred in other towns.

In conclusion, it may be added that while no differentiation has been made above between the influenza mortality of pandemic years and intercurrent prevalences, it is believed that the causation of the two types is different; nevertheless, so far as periodicity is concerned, if regard be limited to the influenza pandemics of 1890–95, 1899–1900, 1908–09, and 1918–19 the average interval is 50 weeks—i.e., about a year.

THE LATE DR. J. REES GABE.—John Rees Gabe, who died at his residence in Mecklenburg-square, London, on March 2nd, in his sixty-eighth year, was a student at the London Hospital and became L.S.A. in 1876, taking the M.R.C.S. Eng. three years later. After holding a junior appointment at the Poplar Hospital he was for two years clinical assistant at the London Hospital, and afterwards at the Hospital for Sick Children, Great Ormond-street. In 1885 he passed the M.D. Brux. examination with distinction, and became later president of the Brussels Medical Graduates' Association. Dr. Gabe held the posts of physician to the London Dispensary, to the General Post Office, Mount Pleasant, and to the National Society for the Prevention of Cruelty to Children. He was also public vaccinator for Holborn and divisional surgeon to the Metropolitan Police.

A NOTE ON THE USE OF UNIVALENT SERUM IN THE TREATMENT OF CEREBRO-SPINAL FEVER.

BY H. STANLEY BANKS, M.A., M.B., CH.B., D.P.H.,
MEDICAL OFFICER OF HEALTH, MOTHERWELL; MEDICAL SUPERINTENDENT, BURGH HOSPITAL, MOTHERWELL; LATE BACTERIOLOGIST, B.E.F., SALONIKA.

THE ease of diagnosis of the type organism of cerebro-spinal fever by simple and rapid laboratory methods and the remarkable possibilities of cure in the treatment of this disease by antimeningococcic type serum are not yet as widely known as they deserve to be. Reference to Case 2 described hereunder will, I think, show that, at least as regards type 1 of the disease, there is some justification for the hope that it is on these lines that treatment of cerebro-spinal fever is likely to meet with successful results. This article refers more particularly to the first of the four types described by Gordon.

Gordon's Four Types of Meningococcus.

Among the advances made by medical science during the war not the least important is Gordon's discovery of the four types of the meningococcus. Formerly we were content to classify the cases clinically as "fulminating," "acute," and "subacute" or "chronic." Now we have a bacteriological classification of the disease into cerebro-spinal fever types 1, 2, 3, and 4, and with a little more experience a fairly reliable clinical classification corresponding to these types may also be arrived at.

A few observations on this point have already been made. Thus Kennedy and Worster Drought[1] investigated the relation of the type of meningococcus to the clinical picture in 22 cases and found that 8 cases infected with Gordon's type 1 were all gravely ill, with a fatal issue in 6 cases; that of 6 cases with type 3 some were severe and some moderately severe, and that the 8 cases of type 2 all recovered; of type 4 there were no cases recorded. The observations suggest that types 1 and 3 (Nicolle type A) are more virulent as regards the meninges, and that types 2 and 4 (Nicolle type B or parameningococcus) are specially prone to cause septicæmia and extrameningeal metastases.

The evidence of other writers, such as Rolleston[2] and Adshead,[3] on the point is more conflicting and no constant relationship can be regarded as established.

The process of differentiation of the type is similar to what is already fairly well established for the enterica group of fevers—viz., typhoid, paratyphoid A, and paratyphoid B, in each of which a distinctive clinical picture is frequently obtained enabling a presumptive clinical differentiation to be made. The same can be said of the dysenterica group of bacillary dysenteries.

In the cerebro-spinal group of fevers, however, the differentiation is of vastly greater practical importance to the patient, for upon it rests the question of specific treatment by the univalent type serum, and this is prima facie the only treatment which affords a substantial prospect of success.

Illustrative Cases.

The following two cases illustrate the results which may be obtained in type 1 cerebro-spinal fever by the intrathecal injection of the specific type 1 serum. In the first case I came to the diagnosis slowly by a process of exclusion. In the second case, profiting by experience, I made the diagnosis directly on clinical grounds, and confirmed it a few hours later by a simple bacteriological agglutination test. In this latter case a single intrathecal injection of the type 1 serum cut short well-advanced cerebro-spinal fever in a single night—a rapidity of cure which I have never seen surpassed by any form of antitoxin treatment.

CASE 1.—A boy (T. J.), aged 4 years and 7 months, was admitted to the Burgh Hospital, Motherwell, on July 11th, 1919, suffering from cerebro-spinal fever of 14 days' duration.

History: Vomiting at onset and subsequently at intervals; pyrexia each day; gradually increasing retraction of head. On admission the boy was thin, fretful, and looked ill; considerable retraction of head and rigidity of muscles of back of neck; Kernig's sign positive. Tâche cérébrale present. Pupils equal and normal. No eruption. Lumbar puncture produced about 30 c.cm. turbid cerebro-spinal fluid under pressure. Microscopical examination showed numerous polymorphs and typical Gram-negative intracellular diplococci.

Course of the disease.—This can be followed by reference to Chart I. My laboratory was not in working order at the time, and I conveyed the cerebro-spinal fluid for examination to Dr. W. R. Wiseman, of the Glasgow Municipal Laboratory. The meningococcus was grown by Dr. Wiseman, and types 3 and 4 excluded by agglutination tests. Unfortunately, he was unable to obtain agglutinating serum for types 1 and 2, and he reported that presumably the organism belonged to one of the latter types. I had meanwhile given empirically one dose of multivalent serum and two doses of type 2 serum intrathecally, but absolutely without result. Assuming, therefore, that I was dealing with type 1 of the disease I gave 25 c.cm. (Lister Institute) type 1 serum intrathecally on July 24th. By this time the child was in the twenty-seventh day of disease. He could not have weighed more than 10 lb., was horribly emaciated, and in extremis. Nevertheless, he improved visibly the following day. I repeated the injection two days later, and his temperature became normal on the following day and general improvement set in. On July 30th I gave 25 c.cm. (R.A.M. College) type 1 serum, and this, unfortunately, was followed by symptoms which were possibly anaphylactic in character—pyrexia, purpura hæmorrhagica, black stools, and retraction of head. The child was extremely feeble, and I think I have never seen anyone so ill as he was then recover. Improvement set in again on August 17th, when he began to talk and take notice. He was eventually discharged, physically in splendid condition and mentally bright, alert, and intelligent on Nov. 18th. Lumbar puncture was in this case carried out 20 times between July 11th and August 16th, by which time the cerebro-spinal fluid was perfectly clear.

The diagnosis in the above case was strongly presumptive of type 1, both from bacteriological findings and the results of the treatment. The next case provides a striking similarity as regards symptoms and a strong contrast in diagnosis, treatment, and course.

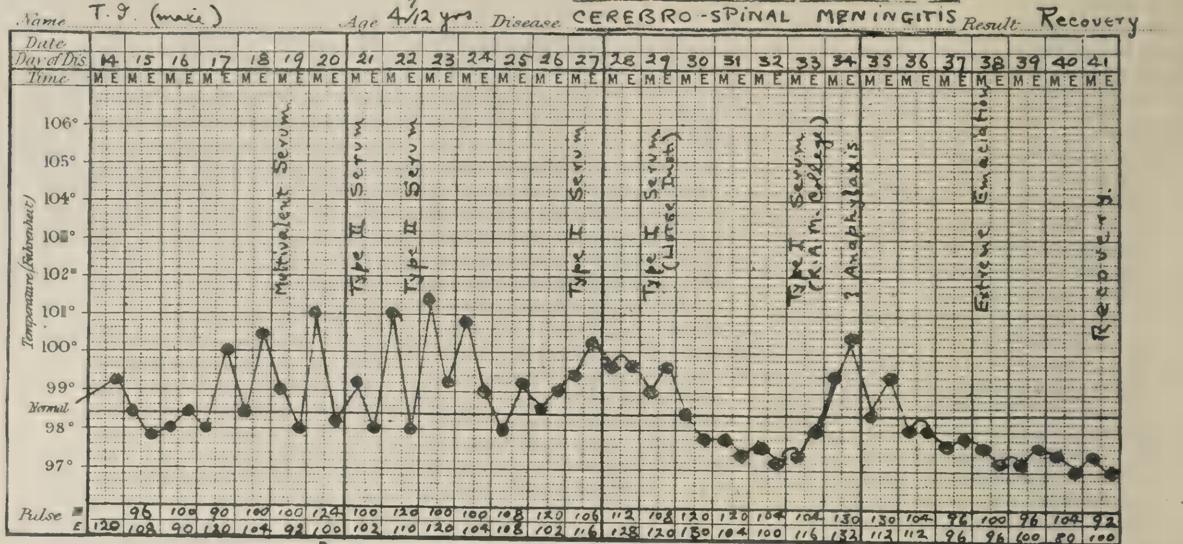
CASE 2.—A male child (J. McD.), aged 1 year and 3 months, was admitted to the Burgh Hospital, Motherwell, on Nov. 20th (the thirteenth day of illness) suffering from cerebro-spinal fever.

History: Vomiting at onset; pyrexia each time examined; gradually increasing retraction of head. On admission the child was pale, wasted, very cross, and peevish; well-marked retraction of head. Tâche cérébrale present; Kernig's sign doubtful. Pupils normal and equal. No eruption. Lumbar puncture confirmed the diagnosis of cerebro-spinal fever.

Cultural and agglutination tests.—A meningococcus was grown which was agglutinated strongly by type 1 serum and not at all by types 2, 3, and 4 (R.A.M. College) or by normal human blood serum.

Treatment and course.—(See Chart II.) Patient's temperature on admission was 102° F. and lumbar puncture

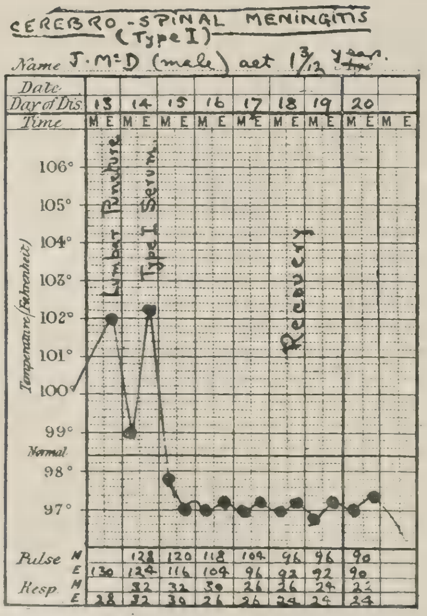
CHART I.



Type 1 disease not diagnosed until twenty-seventh day, by which time the child was desperately ill. Note favourable effect of two doses type 1 (Lister Institute) serum. Further injection of type 1 serum (R.A.M. Coll.) followed by severe symptoms, possibly anaphylactic in character. Extreme emaciation; gradual recovery. Note uselessness of multivalent and type 2 serum in this case.

gave about 25 c.cm. turbid fluid under pressure; this fluid was cultured. The following evening the temperature was 102·2° and lumbar puncture gave about 10 c.cm. turbid fluid. The similarity of his symptoms to those of Case 1 induced me to give an intrathecal injection of 20 c.cm. (Lister Institute) type 1 serum.

CHART II.



C.-S.M. Type 1. Admitted on thirteenth day of disease. Lumbar puncture yielded 30 c.cm. turbid fluid. Type 1 serum injected on following evening. Note fall of temperature by crisis and complete arrest of the disease.

(A few drops of the serum were saved for agglutination tests.) The temperature fell by crisis the following day, and the child appeared well in the morning and was actually sitting up and moving about his cot. He was up and toddling about the ward within two days of the injection: perfectly well; appetite was voracious and sleep at night sound. He was discharged on Dec. 2nd.

The diagnosis of the type in this case was confirmed a few hours after the injection had been given by microscopic agglutination tests of the meningococcus obtained from the fluid against the type 1 serum injected, and subsequently against all four types of (R.A.M. College) serum as given in the table. The results were definite and unmistakable. They appear to show that all that is necessary in practice is to test the organism isolated against a low dilution (e.g., 1:30) of each of the type serums, provided the latter are of high titre. The reacting serum gives the diagnosis of type.

Agglutination Tests (Microscopic Method).

Organism: Meningococcus cultivated from cerebrospinal fluid of Case 2.

Serum.	Dilution.	Result.	
		1 hour.	24 hours.
Antimeningococcus univalent:			
Type 1 (Lister Institute)	1 : 30	+ + +	+ + +
Type 1 (R.A.M.C.) titre 1 : 800	1 : 30 1 : 80 1 : 160 1 : 400 1 : 800	+ + + + + +	+ + + + + + + + + +
Type 2 (R.A.M.C.) titre 1 : 800	1 : 30	–	–
Type 3 (R.A.M.C.) titre 1 : 800	1 : 30	–	–
Type 4 (R.A.M.C.) titre 1 : 800	1 : 30	–	–
Normal human blood (H.S.B.)	1 : 30	–	–

Plus signs denote clumping and cessation of Brownian movement: + + + very marked, + + marked, + distinct.

If group agglutinins are present in the non-reacting serums they do not appear to be sufficiently strong to vitiate the test.

Bacteriological Technique Required.

The bacteriological technique and apparatus required is simple. The tests can be readily carried out in any fever hospital or other laboratory which is equipped for the examination of throat swabs for diphtheria.

The culture of the meningococcus from cerebro-spinal fluid is supposed to require special protein-enriched culture media from which plate cultures must be made. In the above case I obtained copious primary growths within 24 hours on ordinary coagulated blood serum slopes, such as are used for the culture of the diphtheria bacillus from swabs. The following conditions should, however, be observed: (1) the cerebro spinal fluid should not be allowed to become chilled before the culture tubes are inoculated; (2) the culture tubes should preferably be inoculated and incubated within ten minutes of the removal of the cerebro-spinal fluid from the body; (3) the culture tubes should be warmed to blood heat before the inoculation by placing them in warm water.

The agglutination of the meningococcus for practical test purposes, given a high-titre serum, does not seem to require the elaborate apparatus usually described, such as a water-bath regulated to 55° C. and the various tubes, pipettes, and racks required for the macroscopic method. The ordinary microscopic method, as used in the old Widal test, appears to be good enough. The dilutions can be made with sufficient accuracy by the platinum loop method. A dilution of 1 in 10 is obtained by mixing one loopful of serum with nine loopfuls of normal saline. By adding to one loopful of this dilution two loopfuls of the meningococcal emulsion on a cover-glass the organisms are suspended in a dilution of 1 in 30 of the ordinary serum. The cover-glass is inverted over the ordinary "cavity" slide, and the preparation kept in the incubator at 37° C. and examined after one hour. With a high-titre serum—say, a titre of 1 : 800—clumping of the organism and cessation of Brownian movement is well marked within that time in the case of the appropriate type serum; while in the case of the other type serums or a normal serum control the test is quite negative.

Remarks.

In view of the practical importance of the subject matter of this article, I have considered it advisable to publish this preliminary communication without waiting for confirmation from a large series of cases. The method of diagnosis and treatment described can be carried out in nearly every fever hospital in the country with the minimum trouble, and possibly with great saving of life.

Supplies of type antimeningococcic serum do not appear to be yet available in the ordinary market. I obtained phials of the serum for treatment from the Lister Institute, London, and small phials for agglutination purposes from R.A.M. College, London.

References.—1. Kennedy and Worster Drought: Brit. Med. Jour., 1917, i., 261. 2. Rolleston: THE LANCET, 1919, i., 546. 3. G. P. Adshead: Treatment of Cerebro-spinal Meningitis by Anti-meningococcic Serum at Royal Naval Hospital, Haslar, Special Report Series No. 17, Medical Research Committee.

BRIGHTON AND INDIAN WAR MEMORIAL.—As the contribution guaranteed by the Indian Government is limited to £4000, the original proposal at Brighton by Indians to offer to the corporation a "rest-house" as a memorial of their gratitude for the hospitality shown by the inhabitants of Brighton to the wounded Indian soldiers at the Royal Pavilion Hospital cannot be carried out. As an alternative, however, Sir John Otter, chairman of the Indian Memorial Committee, who has plenary authority to settle the matter, has offered to erect a memorial gateway and screen at the southern entrance of the Royal Pavilion and the corporation has accepted it.

NOTES ON THE
ÆTIOLOGY OF EFFORT SYNDROME.

BY R. GORDON BARLOW, M.D. LIVERP.,
LATE TEMPORARY CAPTAIN, R.A.M.C., WESTERN COMMAND HEART CENTRE.

THOSE who are acquainted with the Medical Research Committee's "Reports upon Soldiers Returned as Cases of Disordered Action of the Heart (D.A.H.), or Valvular Disease of the Heart (V.D.H.)," and with "The Soldier's Heart and the Effort Syndrome," by Dr. Thomas Lewis, may consider that there is little profit in putting forward further statistics and observations on this subject. Experience seems to indicate, however, that a large number of the members of the profession are still unacquainted with the results of the investigations that have been made at the Military Heart Centres, and the number of soldiers contained in these groups of "heart cases" is so large that the study of a new set of cases with a view to arriving at the truth regarding the ætiology of the conditions, and drawing what conclusions one may for prevention and treatment, seems amply justified.

It was estimated that at least 70,000 soldiers reporting sick had been classified as cardio-vascular cases up to the end of May, 1918, and a steady stream has continued to pass through the hospitals since then. The majority of these cases falls into the group D.A.H. or "effort syndrome." Besides the military cases there are, no doubt, considerable numbers of persons suffering from this condition who have not come under observation in the army, as the condition is by no means peculiar to soldiers.

The impressions given below are based on over 1200 cases. The figures are the result of the analysis of the records of 382 consecutive cases, all of which were ultimately classified as D.A.H., though many of them had been marked V.D.H. at some period of their military career.

Method of Investigation.

A short explanation of the method of investigation into the ætiology is necessary.

Every patient was carefully questioned regarding his health from earliest childhood. After being given an opportunity of volunteering information, he was asked directly if he had had any of the common illnesses (mentioned by name) at any time in his life. He was then questioned as to his ability to play football and other boys' games, and the character of his civil employment and his habits with regard to exercise between school and enlistment were noted. Record was made of the category in which he joined and of any previous rejection for the navy or army. A statement of the nature of the training received before proceeding on service was obtained, and direct questions were asked as to the severity of the physical drills and route marching. By this means a fairly accurate estimate of each man's capacity for exercise was made. Of course, the evidence thus elicited rested entirely on the patients' statements, but there rarely seemed any reason to doubt them, and what errors there may have been in the histories were due rather to want of recollection than to intentional suppression of facts or false statements.

In a few cases there was documentary evidence of the existence of tachycardia or other signs of abnormality of function of the cardio-vascular system on enlistment.

When with nothing to suggest that any degree of effort syndrome existed before they went on service men developed the condition later, careful inquiry was made as to the date and circumstances under which the symptoms first made their appearance, and for any illness or other casualty that could reasonably be considered as causal.

Investigating along these lines, it was found that more than half the patients had a greater or lesser limitation of power of responding to exercise before going on active service. Many of them could trace this condition to some definite illness, generally in childhood, and a considerable number of them had been told that they had "weak hearts," and had been advised to avoid all forms of strenuous exertion. The majority of these men were taken into the army in low categories and remained on the lighter forms of duty, though a few had been graded up and had carried on with heavy work for varying periods, ultimately breaking down as the result of the supervention of some infection such as trench fever, malaria, or sand-fly fever.

As nearly all the cases under consideration were examined after the cessation of hostilities, and many of them were youths who had seen no fighting and had done little strenuous training, the importance of the recognition of the "constitutional" origin of so many of these cases is obvious.

Classification of Cases.

For purposes of classification the cases have been divided into two groups:—

Group 1, *constitutional*, with history of the existence of the condition before enlistment or on commencement of physical training.

Group 2, *acquired*, with symptoms developing after a fair period of training well tolerated, or of heavy work performed without distress.

Of the 382 cases analysed, 196 fell into Group 1 and 186 into Group 2. No definite origin could be traced in 102 of the former; 47 were ascribed to rheumatic infections, comprising acute articular rheumatism, chorea, and severe recurrent sore-throat; 43 dated from various other infections; and in 4 cases the condition appeared to be merely part of a well-marked constitutional neurosis.

It will be observed that nearly one-quarter of the cases was attributed to rheumatic infection, and it should be understood that a mere statement by the patient that he had had "rheumatism" was not considered as sufficient to warrant inclusion in this class, only cases which, upon inquiry, appeared to be of true rheumatic infection being included. Pulmonary and pleural diseases formed a large part of the "other infections."

In Group 2 a more detailed analysis was possible, and, for convenience, the results have been put into the form of a table, thus:—

Analysis of Group 2.

Sub-group.	No. of cases.	Percentage.
Rheumatic infections	7	3·76
Pulmonary infections	16	8·60
Influenza	29	15·59
P.U.O. and trench fever	17	9·15
Gastro-intestinal infections	17	9·15
Malaria	12	6·45
Shell-gas poisoning	19	10·20
Wounds	10	5·38
Nephritis	1	0·54
Other infections	14	7·52
Neurotic	5	2·69
Undiscovered origin	39	20·97
	186	100·00

It will be seen from this table that the origin of the effort syndrome was traceable directly to infection of one kind or another in by far the majority of the cases, and also that rheumatic infection was a comparatively rare cause in the acquired type. On the other hand, influenza was a fairly common cause, and many of the most typical cases were to be found in this group.

Most of the wounds that were regarded as producing effort syndrome were ordinary flesh wounds of slight or moderate degree; none had been severe, but all entailed a fairly considerable period of hospital treatment and light duty, as did also the cases of shell-gas poisoning, a point of importance in the ætiology of this condition of effort syndrome which will be referred to later.

The gastro-intestinal cases consisted chiefly of patients whose D.A.H. symptoms dated from dysentery or "clinical dysentery," but there were two cases of appendicitis, one of the chronic variety in which the effort syndrome cleared up soon after the operation for removal of the appendix, and the other following drainage of an appendix abscess.

One of the five cases classed as "neurotic" was an orderly in a home hospital who had suffered for some months from chronic rhinitis, and attributed his D.A.H. symptoms to this affection combined with a long period of night duty. He was very depressed, became tearful without occasion, did not associate with the other patients or take part in the recreations of the hospital, and complained of terrifying dreams and fear of darkness; in addition, he suffered from præcordial pain and developed breathlessness and tachycardia on slight exertion. He had nothing in his history to suggest that either condition existed before enlistment. In the other four cases the condition dated from being blown up, or buried, or under heavy bombardment.

Effort Syndrome not a Functional Neurosis.

It has been suggested that the effort syndrome ought to be regarded as a condition of functional neurosis. There certainly is a neurotic element about a great many of the patients, as judged by such signs as exaggerated tendon reflexes, muscular tremors and blepharospasm, and such symptoms as subjective pains, local hyperæsthesia and hyperalgesia, terrifying dreams, fear of darkness and loneliness, fits of depression and emotional outbursts, and impairment of memory. No fewer than 89 of the 382 cases under review admitted that they were subject to terrifying dreams. Of this number 51 had dreams of falling. Marked exaggeration of knee-jerks and coarse muscular tremors were frequently met with, and complaints of severe joint pains were often made in cases in which no signs of disease or only slight rheumatoid changes could be detected. Two patients had hysterical fits, but no patient had paralysis of any sort or anæsthetic areas.

In spite of the presence of neurotic manifestations in so many of these cases it does not seem right to regard the effort syndrome as a neurosis. In the first place, no ground for classifying them as neurotic was found in more than three-quarters of the cases. Secondly, some degree of hypersensitiveness of the nervous system was so common among soldiers of all classes (as was only to be expected) that it can scarcely be looked upon as abnormal. During the period of active warfare it was a very common experience in both medical and surgical wards to hear men shouting in their sleep in a way that clearly showed they were dreaming of terrifying incidents, and a very large number of the patients were to be found grinding their teeth incessantly during sleep. Again, soldiers have been notoriously bad subjects for anæsthesia, mainly on account of their tendency to violent excitement during induction. Such disturbances as are indicated by these signs might well be expected to lead to a magnification of subjective symptoms; this was met with in many of the conditions seen in military hospitals, as, for example, in the persistent pains of trench fever, myalgia, rheumatoid arthritis, and the scars of some gunshot wounds, as well as in the præcordial pain, tachycardia, and dyspnœa of D.A.H. Yet no one would go so far as to dismiss these other conditions as purely neurotic, so that there is no justification for relegating the effort syndrome to that scrap-heap.

It is generally admitted that excessive smoking has a deleterious effect on the heart's functions, and many medical officers have expressed a firm belief that this has been the cause of D.A.H. in the majority of soldiers suffering from the condition. A diagnosis of "smoker's heart" is also very popular in the irritable heart of civil practice, both with the profession and with the laity. Probably no one will deny that army life has led to a considerable increase in the amount of smoking, but it is common experience that an active outdoor life greatly increases a man's tolerance for tobacco, because it induces rapid elimination of the toxin, so that the clerk who found five cigarettes a day quite enough for him when engaged on his sedentary work could smoke 15 or 20 without feeling any ill-effects whatever whilst on active service. At the Heart Centres every patient was asked how much tobacco he habitually used, and, as it was recognised that there is always a tendency to under-estimate one's consumption, the largest quantity to which the man could be persuaded to admit was recorded as his average. The figures thus obtained showed that excessive smoking was rare, the average in the majority of cases being from six to eight cigarettes daily. Quite a considerable number of patients never smoked or had given up the habit for a long time. Observation of the patients under various conditions at all times of the day gave no reason to doubt their statements in this connexion, and there seems no justification for the view that attributes a main part to tobacco in the production of the effort syndrome. On the other hand, many patients admitted that they found their symptoms were increased by heavy smoking after they had once been established, and some had cut down their tobacco, a course that resulted in some mitigation of symptoms in some cases.

Infection as Principal Cause of Effort Syndrome.

Turning again to a general consideration of the evidence provided by the case-records, it seems quite clear that the principal cause of effort syndrome is infection. Though rheumatic infection predominated in the "constitutional" cases, almost any infection may produce the condition. Symptoms usually made themselves felt after convalescence started, and usually resulted in the patient returning to bed or at least refraining from any form of exercise. This is a point of the greatest importance. Anyone who has just suffered from an acute toxic state is liable to experience limitation of function of all the structures that have suffered in the general poisoning, and this limitation is likely to persist if these structures are not toned up to their normal state by judicious exercise. The old bogey that every heart condition must be treated by rest in bed has led to the adoption of this line of treatment in many cases where symptoms are referred to that organ on slender grounds, with unfortunate results for the patient. Numerous patients stated that, having reported that they had slight pain in the heart region, or giddiness, or felt their heart "bumping" when they first began to get about after an acute illness, they were examined and told they had heart trouble, and were then sent back to bed for several weeks. These men usually found that their symptoms were worse rather than better when they eventually started to get about again, and they became cases of established D.A.H. Other patients, again, having complained of no symptoms, were told they had heart trouble on examination by medical officers, and were put to bed or told to avoid any exertion. Such treatment often resulted in the patients discovering that they had tachycardia or slight breathlessness on exertion, or an occasional "missed beat" when lying in bed. The belief that serious heart mischief existed, having once been established, was very difficult to dispel, though not a few of these "manufactured" heart cases (especially those eligible for demobilisation) declared that they were sure there was nothing wrong with their hearts and were indignant at their transfer to a Heart Centre.

Goodhart says, "It is a bad day for a man when he first knows he has a heart," and this is especially true in the case of an irritable heart without structural changes. The importance of the correct assessment of symptoms arising during convalescence, and the proper management of that state, cannot be too strongly urged, in the light of the experience gained in dealing with the effort syndrome. It is exercise, judicially graduated, that is to prevent the development of D.A.H. after acute infections, and persistent treatment on the same lines to effect its cure in cases where it has been established, not rest and avoidance of all physical exertion.

One other point must be mentioned to complete these observations. Although the pursuit of physical exercise is generally regarded as a great characteristic of the people of this country, it is surprising to find what a great number of boys and men take practically no exercise. There is much too strong a tendency to excuse boys and girls from physical exercise and games because they are "weakly" or have "weak hearts," and there are far too many men who are content to watch a football match rather than play themselves or take exercise in some other form.

THE USE OF
AUTOGENOUS BONE GRAFTS
IN THE TREATMENT OF CERTAIN SIMPLE FRACTURES OF BONE.

BY BASIL HUGHES, D.S.O., M.A., M.B., B.C. CAMB., B.SC. LOND., F.R.C.S. ENG.,
ASSISTANT HONORARY SURGEON, CHILDREN'S HOSPITAL, BRADFORD; SURGICAL PATHOLOGIST, ROYAL INFIRMARY, BRADFORD.

THERE are to-day very few fractures of bone in which a satisfactory length and alignment cannot be obtained without resorting to open operation. The enormous preponderance of cases of bone fracture amongst the sum-total of wounds inflicted upon humanity during the past war has afforded great scope for originality in the introduction of newer methods of treatment and improved apparatus, which have sufficed to effect and maintain a satisfactory length and alignment not only in the case of simple fracture, but also in the most extensive type of compound and comminuted fracture. The popular war-splint, which was either Thomas's original knee-splint or some modification thereof, largely supplanted the pre-war wooden splints and plaster, and in so doing removed many objections to the latter apparatus in that the difficulty in maintaining length and alignment, the risk of compression and constriction and consequent delayed union occasioned thereby, ischæmic paralysis, and the like, were overcome.

There are still, however, a few simple fractures difficult to treat satisfactorily without open operation. These include fractures situated in the immediate neighbourhood of the hip- and shoulder-joints, which are often followed by osteo-arthritic changes unless a very accurate reduction is obtained, and spiral fracture of the lower third of the tibia where imperfect length and alignment will lead to faulty transmission of body-weight accompanied by its attendant evils. It must be remembered that every change in the formation and function of a bone is attended by certain and definite changes in its internal architecture (Wolff's law), hence a true length and alignment are of paramount importance.

Bone Grafts: their Fate, and Advantages over Plates and Screws.

In order that a bone graft may grow and function certain conditions are essential:—

(1) The graft must be autogenous. Bone transplanted from the lower animals to man or from one individual to another lives and functions only very exceptionally.

(2) The graft must be suitably nourished. A piece of bone transplanted from one part of the body to another will continue to live if strict asepsis has been observed; there is abundant evidence to prove that it can acquire the requisite nutrition from the lymph of the part in which it is lodged until such a time as its own blood-supply becomes established.

(3) When removing the graft it is advisable to include both periosteum and endosteum, for by such means earlier vascularisation and consequent union of the graft are undoubtedly obtained.

(4) When once the graft has commenced to unite a certain amount of movement of the muscles can with advantage be allowed. By this means the correct lines of stress and strain will become established in the graft according to Wolff's law.

There are several theories to explain what actually happens to the bone graft. The important question seems to be, is the graft osteogenetic or is it not? Some hold that all the bone in the graft is absorbed, and that the new bone is formed entirely from the periosteum. This view would gain support from the work of Stiles in his sub-periosteal resection of bone for tubercular disease, and from the work of Leriche on esquillectomy for war fractures. Macewan's view that the new bone is formed by proliferation of osteoblasts within the bone itself, and is independent of the periosteum, directly contradicts the above. It seems that a solution to the controversy rests in a real understanding of what is meant by the true periosteum. If the periosteum includes the true cambium of bone—that is, the layer including Sharpey's fibres—then without a doubt such a structure is osteogenetic. Another view is that the graft is not in any way osteogenetic, but simply acts as a scaffolding which in due course is absorbed and replaced by new bone by immigration into it first of osteoclasts and later of osteoblasts from the adjacent bone. My own experience leads me to believe that all these views are in part correct, if the periosteum be taken to include the true cambium of the bone, and in cutting the necessary grafts I have included periosteum, compact bone, and endosteum.

Early and repeated skiagrams of the grafts have shown partial rarefaction only about the periphery of the graft and not a complete rarefaction, whereas new bone formation can be seen to be taking place from the graft itself.

Although many brilliant results have been obtained through the fixation of fractures by means of plates and screws, it cannot be denied that the procedure involves the introduction into the tissues of a lasting foreign body, which cannot be removed by osteoclasts and replaced by new bone. Sooner or later rarefaction of the bone takes place around the screws and the plate works loose. Pain of a boring character may occur in the bone, and, worse still, a low form of suppuration may take place even as late as four years after the introduction of the plate. This is specially prone to occur if the patient's resistance be lowered by any debilitating disease such as malaria. I removed a piece of silver wire from a patient's patella owing to suppuration occurring two and a half years after its introduction; also a plate and screw from the femur of another patient four years after its introduction, for a similar reason. I have met with other cases in which removal of the foreign body has been necessary owing either to pain, suppuration, or the plate working loose. An examination of the pus in three cases showed *Staphylococcus aureus* to be present, but in two other cases no organisms could be found either in a stained film or by culture. Further, in my experience union of the fracture has never been so rapid or natural in the cases in which plates have been used as in those in which the bone graft has been employed. Moreover, in not a few cases the introduction of a plate has been followed by non-union of the fractured bone.

On the other hand, in using a bone graft we are not dealing with a foreign body, but with living tissue which in time becomes part of the bone and in which the lines of stress and strain eventually conform according to Wolff's law. The operation for bone-grafting is certainly more extensive and involves opening up the medullary cavity, but the latter is of no moment if strict asepsis be observed. The operation for bone-grafting takes a longer time than fixation by plates and screws; the technique is more exact and difficult and requires considerable practice. The type of graft called for in the case of simple fracture is almost invariably the "sliding graft."

Operation.

The very strictest asepsis is called for in this branch of surgery, for if once infection gains access there is not only the risk of osteo-myelitis with its sequelæ becoming established, but death of the graft will certainly follow. It is advisable to give two or three inoculations of staphylococcus aureus vaccine prior to the operation. It is to-day very advisable to ascertain whether or not the patient has had malaria, because malaria exerts a very baneful influence upon the bone marrow. If any malaria is present it should be treated without delay. Operations upon bone are not so satisfactory in malarial countries as they are at home, and simple fractures do not unite so readily in malarial subjects. Similarly, if the patient has at any time suffered from syphilis it should be ascertained that he is cured, as operations upon the bones of syphilitics at any period of the disease are apt to be disappointing. All skin infections, such as acne, boils, &c., should be corrected before operation, and a careful examination of the urine undertaken in order to exclude albuminuria and glycosuria.

After having thoroughly cleansed the skin of the part the limb is emptied of blood and a tourniquet applied. In case of fracture about the shoulder and hip-joints digital pressure, if possible, should be employed. An incision is now made down to the bone and the site of the fracture thoroughly exposed. The edges and sides of the wound are carefully protected with tetracloths and the bone ends are seized with forceps. While the necessary extension is made by an assistant the ends are accurately approximated and held in position with Lane's forceps by another assistant. The graft should be wedge-shaped and made to include periosteum, compact bone, and endosteum. It is then made to bridge the fracture, and is secured in its place by means of kangaroo tendon in the manner shown in the figure. Throughout the operation it is desirable to keep even the gloved finger out of the wound. Only boiled instruments should enter the wound, and all swabbing should be done by means of dry sterile swabs on the end of forceps. When the graft is satisfactorily fixed the soft parts should be allowed to cover it and the skin approximated with a continuous suture or Michel's clips. The limb is then put at rest on a splint, and the stitches can be removed on the tenth day.

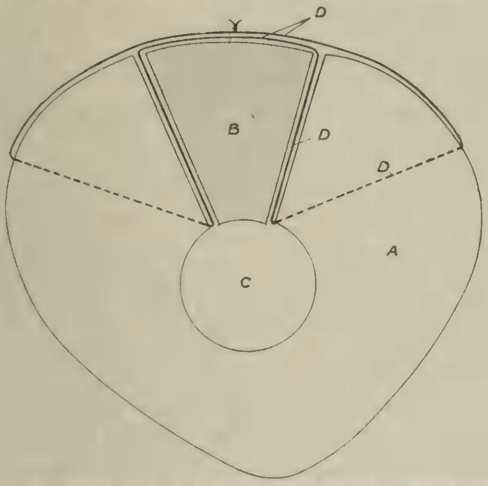


Diagram of cross-section of bone, showing how the wedge-shaped graft is made secure. A, Shaft of bone. B, Graft. C, Medullary canal. D, Kangaroo tendon.

At the end of the third week the patient may begin to use his toes or his fingers, and by these means the bone graft to some small and sufficient extent begins to function, and thereby the correct lines of stress and strain crystallise out according to Wolff's law.

Remarks.

The graft has usually grown in firmly by the end of the sixth week, and at the end of the eighth week the patient may begin to use the limb. Skiagrams taken after the tenth week show the graft to be almost indistinguishable both in texture and quality from the adjacent bone.

Of a particular series, including 15 cases, two were fractures of the surgical neck of the humerus and one a fracture in the upper third of the femur. One was a fracture of the neck of the femur; this case was treated by driving a bone peg, fashioned from the tibia, through the great trochanter into the head of the bone via the neck. One case was a fracture in the upper third of the shaft of the humerus, while the remainder were spiral fractures of the tibia in its lower third. One case suppurated despite the strictest aseptic precautions, but unfortunately this patient contracted severe malaria after the operation. Nevertheless, in this case the graft grew in and the patient did well under intensive treatment with quinine.

Grafts will grow and function in cases of mildly septic fracture, but I hope to deal with their uses in this connexion in a subsequent paper. I think that from every point of view the autogenous graft is superior to the plate and screws or to the use of any other kind of foreign body. The results have been so gratifying and excellent that I shall always employ it in future for those cases that call for open operation. In all of the above cases Albee's bone-grafting instruments were used.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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TORSION OF THE APPENDIX.

BY EDMUND C. BEVERS, M.B., B.CH. OXON.,
F.R.C.S. ENG. AND EDIN.,
HONORARY SURGEON, RADCLIFFE INFIRMARY, OXFORD.

TORSION of the appendix would appear to be a rather rare condition; the only previously recorded case that I have been able to find is that by Mr. J. E. Payne in the *British Journal of Surgery* for October, 1918. The following case, which came under my care in December, 1918, may therefore prove of some interest.

E. F., aged 35, was admitted to the Radcliffe Infirmary, Oxford, suffering from abdominal pain and vomiting; 60 hours before admission she was seized with severe pain in the right iliac fossa during the night and vomited almost at once. The pain increased in severity and vomiting continued at intervals. On admission her pulse was 120 and her temperature 100° F., the abdomen was slightly distended and generally rigid, this rigidity being most marked over the lower half of the right rectus, and there was acute tenderness on pressure in the right iliac fossa. I regarded the case as one of acute appendicitis with perforation, and operation was at once undertaken.

The abdomen was opened through a muscle-splitting incision, the peritoneum was injected and a little clear fluid escaped. The appendix was found hanging over the brim of the pelvis, both it and the meso-appendix were much swollen and dark purple in colour, and in places becoming black. At the base of the appendix and close to the cæcum were two complete twists, there were no adhesions, and the appendix was quite free in the peritoneal cavity. The appendix was removed and the abdomen closed without drainage, recovery being uneventful.

The appendix was 3 inches long, in a condition of acute gangrene, and contained a small concretion near the tip.

Remarks.

It is difficult to be certain of the sequence of events in this case. The torsion may have been primary and responsible for the gangrene; on the other hand, there is no particular reason why a cylindrical organ like the appendix should undergo torsion. It is much more probable that the distal end of the appendix became inflamed and swollen, and that the torsion followed later. An appendix with its distal end enlarged and swollen approaches closely the pedunculated type of organ in which torsion is common.

In view of the large number of appendix operations performed every year, and the wealth of literature on the subject, the meagre records that exist of torsion of the appendix suggest that this condition must be a rare one.

TOBACCO AMBLYOPIA IN A WOMAN.

BY MONTAGUE L. HINE, M.D. LOND., F.R.C.S. ENG.

IN order to put others on their guard when examining a case of toxic amblyopia in a woman, or one in which, in default of anything more definite, a diagnosis of retrobulbar neuritis might be made, I think the following case is worth reporting.

Mrs. M., aged 51, married, in April, 1919, consulted me as she could not see anything clearly. Fifteen months previously her sight had been affected, but after taking some medicine from her own doctor it improved somewhat. Some four months before seeing me the sight had again failed, so that she was quite unable to read. Her medical attendant could find nothing wrong with the eyes, and glasses were of no benefit. Ultimately she was sent to consult me.

Vision was reduced to 6/60 in each eye, and there was a very large central colour scotoma for red and green, and an incomplete central scotoma for blue. The fundus showed no changes save slight pallor of the optic discs. She admitted smoking cigarettes, but at first said they were "chiefly Grey's, and so forth," and it was only when she was about to leave, after I had exhausted every form of toxin I could think of, that she made the unusual admission that she was "very fond of shag cigarettes," which she got her husband to make for her, when he was smoking his pipe. Prohibition of all smoking soon accomplished a cure, though she did not revisit her medical attendant as I advised.

The smoking of "shag" cigarettes as a cause of amblyopia in a private patient is not one that would be frequently suspected, but in these days, when smoking amongst women is so much on the increase, and there are plenty of patients about whose ability to pay fees is no indication of their previous social status, it is well to bear this case in mind.

Weymouth-street, W.

A CASE OF JUVENILE TABES.

BY DAVID KERR, M.B., CH.B. EDIN.

IN the case here described I suggest that the "painful" hip must be interpreted as lightning pains, and that the three striking features of the case—(1) lightning pains, (2) primary optic atrophy, (3) absent knee-jerks—establish the diagnosis of juvenile tabes in spite of the absence of a history pointing to hereditary syphilis and of the negative Wassermann reaction of his blood and cerebro-spinal fluid.

J. E. G., a boy, aged 14 years, was admitted to the St. James's Infirmary, Balham, on May 8th, 1919, suffering from painful hip of one month's duration. The family history was not in any way noteworthy; a cousin of the patient had had some eye trouble, probably interstitial keratitis. There was no eye trouble in any other relation, and syphilis in the patient's immediate relatives was strongly denied. The pain occurred suddenly, and was of such intensity as to make him cry out; it seldom lasted more than an hour, and then suddenly ceased, leaving him placid and comfortable. He referred the pain to his back, hip, or left side, and as passing from the left flank towards the groin. Except during the actual time of the attack he was able to run about and slept well. The pain could not be localised in any joint. X ray and repeated urine examinations ruled out other possibilities.

In July failing vision was noted—diminished visual acuity, marked contraction of field, abolition of colour fields. Ophthalmoscopic examination showed a somewhat pale disc, a slight total excavation, indications of lamina cribrosa not evident; there was a well-marked chorioidal pigment ring. Vision steadily deteriorated, and soon complete blindness ensued.

On Nov. 8th an attack of vomiting occurred. He wasted a little in the first three months; later his nutrition was well sustained. On only two occasions did he complain of headache. Knee-jerks absent. No paralysis. No impairment of sensation. The boy is bright and intelligent.

The vomiting may have been a gastric crisis; no other cause could be found.

I am indebted to Dr. W. L. Maccormac, medical superintendent of the St. James's Infirmary, for permission to publish this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

REMOTE EFFECTS OF THE SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS.

A MEETING of this section of the Royal Society of Medicine was held on March 3rd, Sir JOHN BLAND-SUTTON, the President, being in the chair.

Mr. H. J. PATERSON read a paper on the Remote Effects of the Surgical Treatment of Gastric and Duodenal Ulcers. He considered these results from three points of view: (1) clinical, or the result of the operation as regards the patient; (2) physiological, or the result of the operation as regards the secretions of the stomach and the metabolism of the body; (3) pathological, or the influence of operation on the healing of the ulcer and the complications which might ensue from surgical treatment.

1. *Clinical.*—The conclusions were based on his first 450 cases, all performed over seven years ago. An analysis of this series gave the following results: 51 of the patients had died of other diseases, having lived for more than two years after the operation without any recurrence of their gastric disorder, and 270 were alive and quite well. The number of those who were dead might seem large, he said, but the series dated from 20 years ago, and one patient operated on in 1901 was now 81 years of age. Adding these two classes together gave a percentage of 80 per cent. who might be regarded as cured by the operation. In 9 per cent. the result might be classified as fairly good, the patients being relieved of their pain, but either suffering from occasional attacks of indigestion or having to exercise care in their diet. In 7 per cent. of the cases the operation might be classified as bad, in 4 cases a jejunal ulcer occurred, in 1 there was a recurrence of a duodenal ulcer, and 23 cases were complete failures, probably due in some cases to leaving in the abdomen a diseased appendix in the days before the rôle of the appendix in producing gastric symptoms was appreciated. There must be a definite pathological indication for the operation, and some of the failures were due to disregard of this vital rule. An operation performed on a clinical diagnosis unconfirmed by pathological findings was a mistake both in diagnosis and in operation.

2. *Physiological.*—A study of the physiological effects of gastro-jejunostomy was important, as it showed how gastro-jejunostomy acted and taught the proper indications for its use. There were two striking and constant effects of gastro-jejunostomy on the stomach contents: (1) the diminution of the total acidity; and (2) the increase of mineral chlorides. Tables of gastric analyses were shown illustrating this and showing the amount of free hydrochloric acid and mineral chlorides before and after the operation. The diminution of the total acidity was due partly to the diminution of the total chlorides secreted by the gastric mucosa and partly to the neutralisation of free hydrochloric acid by the small quantity of bile and pancreatic juice which flowed back into the stomach through the anastomosis. The increase of mineral chlorides was constant and permanent. It was not the result of increased activity of the gastric mucous membrane, and must therefore be due to chlorides added from without. The inference, therefore, was irresistible that the increase was due to the mineral chlorides of the bile and pancreatic juice which gained entrance to the stomach through the anastomosis. This was borne out by the fact that if the gastro-jejunostomy were undone there was a decrease towards the normal after restoration of the alimentary canal to its normal condition. Tables of analyses were also shown to illustrate this. Other tables showed that when an entero-anastomosis had been performed in addition to the gastro-jejunostomy, and the bile and pancreatic juice diverted through this opening, no increase of mineral chlorides was present. The difference in the average increase of mineral

chlorides after the different types of gastro-jejunostomy was so small as to be negligible, so that physiologically the type of operation performed was unimportant, with the exception that all types of Y operations and gastro-jejunostomy with entero-anastomosis were unsound. The conclusion to be drawn was that gastro-jejunostomy was not a mechanical but a physiological operation, and its action was to enable nature to counteract hyperacidity and neutralise the effects of hypersecretion. With regard to the effect of the operation on metabolism, a series of experiments showed that the operation did not appreciably diminish the proportion of nitrogen or fat absorbed from the food. We were, therefore, justified in concluding, by both clinical and pathological evidence, that the operation of gastro-jejunostomy did not appreciably interfere with the metabolism of the human body, and was compatible with the enjoyment of perfect health.

3. *Pathological.*—Post-mortem examination in five instances, made four or five years after an anterior gastro-jejunostomy with a long loop, showed that the anterior surface of the stomach had been drawn downwards and posteriorly, while the afferent limb appeared to become shortened, measuring 4 to 5 inches instead of 10 to 12 inches. Post-mortem examination on 16 occasions showed that in all of the cases the ulcer, whether gastric or duodenal, had healed and the anastomotic opening had diminished from 2¼ to 2½ inches to 1¾ to 2 inches in length.

Jejunal Ulcer.

Jejunal ulcer was, perhaps, the most serious after-complication of gastro-jejunostomy. For ulcers situated around the site of the anastomosis he suggested the description "gastro-jejunal ulcers," for those situated in the jejunum he would retain the name "jejunal ulcers." From the records available he thought that we were justified in assuming that the proportion of cases in which jejunal or gastro-jejunal ulcers followed gastro-jejunostomy was between 1 and 2 per cent. There were strong grounds for believing that jejunal ulcer was the result of the toxic action of free hydrochloric acid on the jejunal mucous membrane, the hydrochloric acid so injuring or killing the cells of the jejunal mucous membrane that they were readily digested by the intestinal juice. Jejunal ulcer was usually associated with hyperacidity of the gastric contents, and in the majority of instances the ulcer was situated either opposite the anastomosis or just below it in the efferent limb—that is, just where the acidity of the gastric contents, when they reached the jejunum, was greatest. Usually, after gastro-jejunostomy, the small amount of bile and pancreatic juice which flowed back into the stomach was sufficient to neutralise or reduce to normal the free hydrochloric acid present in the gastric contents; but, if the amount of free hydrochloric acid in the gastric contents was excessive, the bile and pancreatic juice might not neutralise the free hydrochloric acid sufficiently to prevent its toxic action on the jejunal mucous membrane, when it came into contact with it. From observations which he had made on a patient in whom a jejunal ulcer had perforated through the abdominal wall, it was seen that the gastric contents showed a high degree of acidity, which was not neutralised by the bile and pancreatic juice, as was shown by analysis of the fluid escaping from the fistula. After a week on a purely milk diet, the free hydrochloric acid in the gastric contents was reduced to about normal, so that the fluid flowing from the fistula contained only 0·004 per cent. As its percentage in the gastric contents diminished rapidly on a milk diet, the excess was probably due to errors in diet. Jejunal ulcer was sometimes attributed to damage to the intestine, caused by the use of clamps. There were two objections to this hypothesis: (1) the interval between the operation and the onset of symptoms of jejunal ulcer varied in his cases between two and five years; (2) the ulcer usually occurred in a situation not gripped by the clamps. In a few cases jejunal ulcers were probably infective in origin. In such cases the ulcer occurred within a very short period after the gastro-jejunostomy, and the ulcers were usually multiple.

The conditions under which jejunal ulcers might arise might be summed up as follows: 1. Hyperacidity of the gastric contents, so that the bile and pancreatic juice were unable to neutralise completely all the acid entering the jejunum. 2. Normal percentage of hydrochloric acid in the gastric juice, but excessive secretion, so that the amount of hydrochloric acid discharged into the jejunum was greater than could be neutralised, and there was a continual action on the jejunal mucous membrane of a weak solution. 3. Diversion of the course of the bile and pancreatic juice, so that part of the jejunum was exposed to the action of the gastric contents unmixed with bile and pancreatic juice, as after operations of the Y type, and gastro-enterostomy with entero-anastomosis. 4. Normal acidity and amount of gastric secretion, but incomplete neutralisation in the jejunum owing to temporary diminution of the flow of bile and of the secretion of pancreatic juice.

Dr. Charles Bolton, in a series of experiments, found that feeding guinea-pigs on a solution of hydrochloric acid up to 0·7 per cent. produced no effect whatever, but a solution above that strength produced gastric lesions identical in character with those produced by a gastrotoxic action. He concluded that the gastric juice was not only concerned in the initiation of a gastric ulcer, but also in its tendency to spread and to become chronic; and that the gastric juice owed its destructive power primarily to the hydrochloric acid contained in it, and the damage done to the wall of the stomach varied in proportion to the strength of the acid present. These conclusions, Mr. Paterson thought, might be applied with even greater force to the action of hydrochloric acid on the jejunal mucous membrane, which, under normal conditions, was unused to the presence of the acid gastric contents.

Gastro-jejunal Ulcer.

Much of what had been said applied, he continued, to this variety of ulcer. Hyperacidity was an important factor in both, with this difference that jejunal ulcers were the result of altered physiological conditions produced by the operation, whilst gastro-jejunal ulcers were probably a direct consequence of operation. If the mucous membrane were roughly handled or injured, or unduly constricted by too tight a suture, or if coaptation of the gastric and jejunal mucous membranes were imperfect, ulceration would follow at the line of the suture. If hyperacidity or hypersecretion existed, then the ulcer, instead of healing, might persist or spread, and eventually give rise to symptoms, and might lead to great constriction or even closure of the anastomotic opening. That the use of a non-absorbable suture was a cause of gastro-jejunal ulcer he regarded as non-proven.

If his views were correct the practical point arose as to what were the causes of hyperacidity after gastro-jejunostomy. We must draw a clear distinction between two classes of cases: (1) those in which hyperacidity was present before and persisted after the operation, and (2) those in which, after a period of normal or subnormal acidity following operation, the gastric contents subsequently became hyperacid. Hyperacidity persisted after the operation for one of two reasons: (*a*) extreme hyperacidity before operation, so that the bile and pancreatic juices were unable to reduce the acidity of the gastric contents to normal unless the patient was kept on a milk diet for some months; or (*b*) an opening which was too small or inefficient. If the opening were too small hypersecretion might persist, and any kink or twist at the site of the anastomosis would prolong the contact of the gastric contents with the jejunal mucosa. Hyperacidity of the gastric contents succeeding a period of normal or subnormal acidity was probably due to too small an opening or to indiscretions in diet. Operation was only an incident in the treatment of gastric and duodenal ulcers, and too much emphasis could not be laid on the importance of a carefully regulated diet after operation. In most cases indiscretions in diet played the chief part in causing post-operative hyperacidity, and so predisposing to the occurrence of gastro-jejunal and jejunal ulcers. A prolonged period of restricted diet was imperative, especially in cases in which there was hyperacidity before operation. In all cases of hyperacidity increase in diet should be controlled by gastric analyses at regular intervals. Every case of recrudescent pain of a constant character after gastro-jejunostomy, especially when associated with hypersecretion, should be regarded as a case of potential ulcer and treated accordingly.

The Effect of Gastro-jejunostomy on Ulcers of the Lesser Curvature.

In the course of the discussion which followed,

Mr. GARNETT WRIGHT spoke of the effects of gastro-jejunostomy on lesser curvature ulcers and of secondary ulceration. Though in a number of cases this operation would effect a cure, yet there were many patients in whom temporary relief was followed by a disappointing return of symptoms, and subsequent operation showed the presence of an unhealed ulcer. He now adopted one or other method of excision: either wedge-shaped excision and gastro-enterostomy or partial gastrectomy, the last method being the one he preferred. It had the advantage of removing the ulcer-bearing area, as was pointed out by Rodman in 1904. The largest statistics (Mayo Clinic) gave the mortality as 7 per cent. The operation which he did at present was the anterior Polya operation.

Secondary ulceration was the most important of the harmful remote sequelæ of the operation of gastro-jejunostomy. It was almost impossible to get the data for a reliable estimate of its frequency. In its slighter manifestations it was a much commoner condition than was usually suspected, and in many patients in whom a recurrence of the original ulceration was suspected the real lesion was a new ulceration in the anastomosis or in the jejunum. In considering the causation of such secondary ulceration three factors must be taken into account: (1) the digestive action of the gastric juice; (2) sepsis; (3) trauma. A combination of two or more of these factors was necessary to the production of secondary ulceration.

(1) The influence of gastric digestion was shown in the distribution of the ulcers in a position subject to the action of the non-neutralised gastric juice and in the greater liability to ulceration in operations complicated by some form of entero-anastomosis. There was a steadily diminishing power of resistance to gastric digestion as one descended the small intestine. No secondary ulcers had been reported after gastro-duodenostomy, and more occurred after anterior than after posterior gastro-jejunostomy.

(2) Sepsis. Excluding the gross sepsis which might possibly be introduced at the time of operation, there was a potent source of infection in the presence of an unhealed gastric or duodenal ulcer. Streptococci were constantly present in such ulcers, and streptococci had been recovered in large numbers from gastric and duodenal ulcers from patients on whom he had operated, very few colonies being recovered from the rest of the mucosa. An anastomosis established with an unhealed ulcer in existence in the stomach or duodenum was exposed to the risk of infection from the ulcer, and he thought that a certain number of secondary ulcerations, especially of the gastro-jejunal type, could be explained in this way.

(3) Trauma was often an accessory agent in the production of secondary ulceration, and this might be due to the technique of the preliminary operation. In 14 out of 155 cases Murphy's button or some form of bobbin had been used. In 13 a continuous non-absorbable suture was considered to be the exciting cause of the ulceration, but cases had occurred when only absorbable suture material had been used. The bruising of the bowel or stomach produced by the use of heavy clamps had been blamed, and Hartman considered this a very important factor. The more recent cases seemed to be of the gastro-jejunal type, and he wondered whether the through-and-through hæmostatic stitch did not lead to a stoma in the mucosa in which the mucosa was adherent in a thin line all round. Such a stoma would be more liable to injury by pieces of food than one where the mucosa was freely movable over the deeper parts. But the cause of the original ulceration was still probably active, and where this was so patients would develop fresh ulcers in spite of all efforts.

Morbid anatomy of secondary ulceration.—With regard to this he said that the number of cases of jejunal ulceration slightly exceeded the gastro-jejunal variety; out of 142 cases, gastro-jejunal occurred in 63, jejunal in 79. Of the jejunal, in 54 the ulcer was on the efferent loop, in 2 on the afferent loop, and in 10 opposite the stoma—i.e., on the mesenteric border of the jejunum. In 9 cases the ulcers were multiple and in 4 the site was not definitely stated. Acute perforation into the peritoneal cavity took place in 31 cases, and was more liable to happen after anterior gastro-enterostomy (28 per cent. of the cases as against 15 per cent.). Chronic perforation into the abdominal wall was often seen after anterior gastro-enterostomy, large inflammatory tumours and sometimes external fistulæ being produced. After the posterior operation chronic perforation into the mesentery was frequent, the mesentery of the colon becoming thickened and contracted, until finally the colon was brought into contact with the ulcer, perforation into the colon and jejunocolic fistula resulting. Fistula into the colon was almost invariably secondary to a posterior gastro-enterostomy. It occurred in 21 out of 142 cases which he collected, and in only two instances was the preliminary operation an anterior one, and in one of those it was of the retro-colic variety. In the case of ulcers opposite the stoma—i.e., in the mesenteric border of the jejunum—the contraction of the ulcer tended to produce a spur at the gastro-enterostomy opening and consequent obstruction. Heavy clamps might cause such ulcers, as they were situated where the pressure of clamps was likely to be exerted.

Specimens to Show Successful Results of Operation.

Mr. JAMES SHERREN said that if the appropriate procedure was adopted the ulcer healed permanently, and any symptoms which might arise later were the outcome of ulcerative or mechanical changes associated with the anastomosis. Chronic ulcers of the stomach and duodenum healed as the result of gastro-jejunostomy correctly performed unless chronic perforation had occurred, the floor of the ulcer being formed of liver or pancreas, thus preventing the contraction necessary to sound healing. In his experience recurrence of a simple ulcer after suitable surgical treatment was unknown. He had not seen it at post-mortem examinations nor at second operations carried out for other conditions. The only instance in which he had seen the ulcer unhealed had been at second operations for posterior eroding ulcer treated by gastro-jejunostomy alone, and these he now invariably dealt with by partial gastrectomy. A specimen was exhibited showing healing of a chronic duodenal ulcer more than 11 years after gastro-jejunostomy, the patient having died of primary carcinoma of the liver as seen on post-mortem examination. Two other specimens showed the ulcers healed 8 and 3 years after operation.

He believed that the action of the gastro-jejunostomy was twofold—it reduced gastric acidity and led to a more rapid emptying of the stomach. Its good effects were not solely or mainly mechanical. Malignant disease of the stomach might occur at remote periods after treatment of chronic gastric ulcer by gastro-jejunostomy alone. It was the probable cause of death in three of his series at 7, 5, and 4 years after operation. As no post-mortem examination was possible he was unable to say if it arose at the seat of the simple ulcer. They were all cases which he would now treat by partial gastrectomy. In 3 per cent. of chronic ulcers of the stomach which he had removed at operation, the naked-eye diagnosis being simple and there being no evidence or suspicion of malignancy, carcinoma starting at one edge was discovered on microscopic examination. He knew of no case of carcinoma of duodenum arising after operation for chronic duodenal ulcer, but in 2 cases in which the ulcer was involving the stomach further operation became necessary within 18 months, and revealed carcinoma of the stomach, the duodenal ulcer being healed.

Post-operative vomiting of the regurgitant type was due to errors of judgment or technique. In all his cases except the first some abnormality was present at the first operation and some definite mechanical change was found at the second. Gastro-jejunal or anastomosis ulceration was due to the use of unabsorbable suture material for the inner or outer layer, and was the only cause of stricture. He believed that an anastomosis ulcer might become malignant. Jejunal ulcer was due to failure of the operation sufficiently to lower gastric acidity at the same time that it failed to remove the cause of the original ulcer or damaged the jejunum. It was almost unknown after gastro-jejunostomy for chronic gastric ulcer. In all cases of true jejunal ulcer gastric acidity was higher than it should be when compared with the pre-operative, unless the ulcer was communicating with the colon, when a low acidity was the rule. The use of the jejunal clamp was one of the causes of jejunal ulcer, but this of itself would not be enough unless the acidity remained high. He had noted bruising by clamp in 6 cases in which he had records of test meals both before and after operation. In 3 gastric acidity remained high and ulcer developed in all; in the others the acidity was markedly lowered, and there had been no symptoms pointing to ulceration. The operation had been performed over two years previously.

Two specimens were exhibited bearing on the question of jejunal ulcer. One showed the result at a late period after operation. A jejunal ulcer developed as a purely local complication and was excised. The gastro-jejunostomy opening and the jejunum were normal. The other showed a sequel which he had found in over a third of the cases of true jejunal ulcer—perforation into the colon. The ulcer, which had perforated into the colon, was seen free of the anastomosis, which was healthy and showed no sign of scarring. Out of 389 cases of chronic duodenal ulcer which he had operated upon over a period of two years he had been able to keep 348 under observation. Of these, 318 had remained quite well, and might be claimed as successes. This was over 90 per cent. of those traced, or 80 per cent. of those operated on. He had had to re-operate on 19 for secondary ulceration, 10 being jejunal. Of the remainder, all except one, who had, he thought, an anastomosis ulcer, expressed themselves as better for the operation. Of 310 cases of chronic gastric ulcer operated on during the same period, over 80 per cent. of those kept under observation were successful, or 75 per cent. of those operated upon; 14 had second operations, 5 for recurrence after excision alone, 5 for excision of posterior adherent ulcers that had not completely healed after gastro-jejunostomy alone. All these became successes, but were not included. Four were operated on for secondary ulcers, only 1 of which was jejunal. In the remainder complaints were few, and all expressed themselves as better for the operation. The remote result in the treatment of chronic gastric ulcer improved as individual experience ripened.

Failures Due to Injudicious Selection of Cases.

Dr. ROBERT HUTCHISON said that he was a whole-hearted believer in the surgical treatment of chronic gastric and duodenal ulcer, but one must not expect too much. He would not himself regard the operation as even comparatively unsuccessful merely because the patient had occasional indigestion afterwards. It must be remembered that gastro-enterostomy did not make a patient immune to functional indigestion or to attacks of gastritis. He had seen, of course, a good many failures, and a disproportionate number of these seemed to come from certain districts. The bad results were perhaps more often due to injudicious selection of cases than to errors of technique, so perhaps the physicians were to blame for them more than the surgeons. Apart from gross mistakes in diagnosis, and the overlooking of other pathological conditions in the abdomen such as chronic appendicitis or gall-stones, it seemed as if the co-existence of gastroptosis or marked gastric atony militated against a very successful result. In gastroptosis this might be due to the greater curvature sagging down, so that the anastomosis came to be too high up, or a pouch formed behind it in which stagnation of contents took place. He had never seen recurrence of a duodenal ulcer after the operation, and in recent years anastomosis ulcer seemed to be commoner than jejunal ulcer. He accepted Mr. Paterson's explanation of the production of the latter as being due to a continued hyperacidity of the gastric contents, but could not agree that this was the result of errors of diet. In so far as it was not due to the anastomosis opening being too small, it was to be regarded, he thought, as a functional disorder of the stomach, the result of nervous disturbance. In order to prevent its occurrence the state of the patient's nervous system had to be considered, and at the same time alkalies should be given in all cases in which the gastric acidity was excessive. He preferred to use the earthy carbonates for this purpose rather than bicarbonate of soda. He would like to have an expression of surgical opinion as to the relative advantages and disadvantages of occluding the pylorus at the time of the operation and its effect, if any, in preventing or promoting remote ill-effects.

Diagnosis.

Dr. C. BOLTON said that since 1919, when he had reported on 27 cases of jejuno-colic fistula, he had had during the past four years 4 other cases. Of these 3 had recovered after operation by Mr. Wilfred Trotter, and in the other case the fistula had been found post mortem. All the 31 cases had occurred in the male sex, usually from 30 to 50 years of age. The time after the performance of the gastro-jejunostomy at which the fistula had appeared varied from a few weeks to 10 years. He spoke principally about the diagnosis, first considering the exact conditions present. The cause of the fistula was the perforation of a gastro-jejunal or a jejunal ulcer into the transverse colon, such an ulcer resulting from the operation of gastro-jejunostomy. The position of the fistula depended upon the position of the ulcer. Usually the colon communicated indirectly with the stomach through the jejunum. The fistulous opening was situated within an inch of the stoma and to the left, the colon lying in front. Occasionally the colon communicated directly with the stomach if the ulcer was of the gastro-jejunal type. It might also communicate both ways. If the colon communicated directly with the stomach the case was of no great medical interest, because the diagnosis was clear from the typical clinical spectacle of fæcal vomiting and eructations of foul gas, passage of undigested food in the motions, and wasting. If, however, the communication was indirect the condition was of great medical interest, for the diagnosis might be extremely difficult. As the stomach emptied, food passed down the efferent limb of the jejunum, only a small amount or none passing into the transverse colon. Leakage from the colon to the jejunum was more marked and more constant, as the colon continually contained liquid fæces, diarrhœa being a constant feature. The amount leaking into the jejunum depended upon the liquidity of the contents of the colon, the patient being much relieved when he was constipated. Besides, the fæces leaking into the jejunum passed more easily down into the small intestine than back into the stomach. The small intestine thus became infected, and this condition kept up the diarrhœa.

The diagnosis turned on the finding of fæcal material in the stomach contents. Vomiting might be only occasional and fæcal material was not constantly in the stomach, so that the physician might never obtain a view of the fæcal vomit. Vomiting might be absent and fæcal material only obtained by tubage of the stomach. Similarly diarrhœa, which was the earliest and most constant symptom, was liable to mislead the physician. The stools were loose, brownish-white in colour, and not very watery. There was no separate blood nor mucus. They did not occur particularly after a meal, but at any time during the day or night, when they were liable to keep the patient awake. The frequency varied from 3 or 4 to 12 in the day. There was commonly no undigested food present. Ferments were usually absent and the total fat was about normal. There were usually intervals when the motions were formed; the vomiting then stopped and the patient felt much better. Eructations of foul gas were present, but the patient usually brought up no more than occurred in simple indigestion. Intestinal pain was present and referable to both small and large intestines, but was particularly liable to be marked on the right side, where it was of a griping character. When this pain was associated with visible peristalsis a mistaken diagnosis of intestinal obstruction might be made, but the patient was always better when he was constipated and worse when suffering from diarrhœa. The peristalsis was due to narrowing of the colon in the region of the fistula. Wasting was constantly present. The appetite was not necessarily affected, and might be good or even excessive. X ray examination might show an opaque meal passing from the stomach into the colon, or the stomach might be seen to fill from the colon after an opaque enema. Other methods in use were the finding of easily recognisable substances in the fæces shortly after ingestion, the recovery of a coloured enema by tubage of the stomach, and the passage of air into the stomach after insufflation of the rectum or vice versa. The immediate prognosis after operation on these fistulæ was good. Of the 31 cases, 4 had had no operation, and all died—1 from perforation of the ulcer, another from hæmorrhage, and the other 2 from inanition. Twenty-seven were operated upon, and of these 21 recovered. Of the 6 deaths, 2 followed simple exploration of the abdomen, the fistula not being touched.

The Results of Short-circuiting.

Sir D'Arcy Power thought that short-circuiting for dilated stomach, the result of duodenal ulceration, was rarely followed by any untoward results. He described a case in which the patient had suffered from numerous attacks of abdominal pain. In 1903 he had lost 2 st. in weight, and presented the typical symptoms of pyloric obstruction. A posterior gastro-enterostomy was performed. He regained his normal weight, was able to resume full work, and was able to eat a City dinner without subsequent discomfort. He died in 1913 at the age of 58 from acute retention of urine due to an enlarged prostate. Post-mortem examination showed the stomach to be dilated and slightly hypertrophied. The opening between the stomach and jejunum was large and patent, and the mucous membrane of the stomach and small intestine appeared healthy. Microscopic examination of a section taken at the point of suture showed a sharp line of demarcation between the mucosa of the stomach and intestine. The results shown in the specimen were, he thought, those which followed normally in similar cases. The opening remains of the size it was made, the stomach does not entirely recover its normal size, but the patient is able to resume an active life. From time to time he becomes constipated, or he eats what he knows will give him indigestion. He then suffers from abdominal discomfort, becomes depressed, and believes that his former condition is returning. Gentian and rhubarb and a little advice as to dietetics soon cure him. It might be quite otherwise when gastro-enterostomy had been done for an actively bleeding duodenal ulcer. In many cases the patient is relieved by the operation, but he had had two or three in which the bleeding recurred, and in one case the hæmorrhage was so repeated and severe that the patient died some months after he had operated upon him. In cancer of the stomach and pylorus the operation was palliative, and—in hospital cases at any rate—did not appear to prolong life, though the pain and sickness were relieved. He did not advocate it, therefore, except when these symptoms were prominent, although it was surprising how well the operation was borne, even by patients who were greatly emaciated. So far as he knew, none of his patients had suffered from symptoms of "peptic ulcer," and for this he could assign no reason. He operated rather quickly, did not use intestinal clamps, sutured with No. 2 silk, and had shortened the jejunal loop from 9 inches in 1903 to 3 inches in 1920; otherwise his technique remained unchanged.

Mr. R. H. Jocelyn Swan wished to draw attention to the fact that there should be no pathological results from a gastro-enterostomy if performed for a definite mechanical lesion such as pyloric stenosis or prepyloric ulcer. He used very fine thread for all three layers, and after the anastomosis hitched up the distal 1½ inches of the jejunum to the transverse mesocolon in order to avoid any kinking of the new junction. He showed a specimen of carcinoma of the whole pyloric end of the stomach, which was commencing to involve the gastro-enterostomy opening made nine years previously for a cicatricial pyloric stenosis from old ulceration. Apart from this case, and one in which he had had to reopen in order to secure a spurting vessel at the jejunal side of the anastomosis, he had seen no case of jejunal ulcer follow a large number of anastomoses, and in several cases in which it had been necessary to reopen the abdomen subsequently for other conditions the opening had been fully patent.

Difficulties of Operation and Failures in Technique.

Mr. A. J. Walton's remarks were based almost entirely on his own personal experience. The total number of operations was 335, of which 321 were personally treated from the beginning. Of these 321 cases 10 required further operations, 3 for the onset of carcinoma, 3 for recurrent ulcers, and 4 for gastro-jejunal ulcers; in other words, 3·2 per cent. required further operative treatment. Few cases had been lost sight of, so that it was probable that this percentage was fairly correct. The remaining 14 cases had had their first operation performed by some other surgeon, and therefore it was impossible to estimate what percentage of recurrence they represented. The after-history showed that about 80 per cent. were complete recoveries.

The post-operative difficulties might be classified as follows:—

(*a*) The operation is unjustifiably performed. Gastro-enterostomy was sometimes performed without any clear evidence of the presence of gastric or duodenal disease; he wished especially to lay stress upon visceroptosis. Symptoms of this condition might simulate those of a gastric ulcer closely, and at operation local areas of spasm might be seen which appeared to be mistaken for chronic ulcers. Gastro-enterostomy would not only give no relief, but would often be followed by an aggravation of the symptoms. The one exception to this statement was an acute ulcer giving rise to severe hæmorrhage, which might be found with visceroptosis in young women. Under such circumstances a gastro-enterostomy might be of great value, but in his experience only when combined with pyloric occlusion.

(*b*) Gross lack of anatomical knowledge at the first operation. This he had found on three occasions. In two cases a junction had been made with the colon instead of with the jejunum; in the third case an anastomosis had been performed with the ileum 12 inches from the ileocæcal valve. In all three cases the opening had been so badly made that it was too small to function, and the patients might be said to have survived because there were two errors instead of one. Their symptoms were simply those of persistence of the ulcer.

(*c*) Some obstruction of the afferent and efferent loops, a condition now but rarely seen. Four different varieties of the obstruction might be recognised:—

(1) Too long a loop. With a long afferent loop there would be a tendency for the intestine to drag upon the stomach at the junction, so that the afferent and efferent loops became parallel, and a sharp bend with kinking was formed. This was especially likely to happen with an anterior gastro-enterostomy if the ante-colic method were used. Sherren's retro-colic method would overcome this when it was necessary to perform any anterior gastro-enterostomy. (2) Too short a junction. If too small an opening were made the attachment would become so narrow that a kink would occur somewhat similar to that in the last group of cases, the afferent and efferent loops becoming approximated so that the passage would not be clear. (3) Constriction by the opening of the mesocolon. It had always been advocated that the mesocolon be sutured to the junction, in the belief that if this step were not carried out a hernia of the small intestine might take place through the opening. This complication was a rare one, but if the suturing were not performed there was a much more common complication; the ring of the mesocolon would slip downwards and would approximate the afferent and efferent loops so that they would come to lie parallel and would thus be kinked. In fat patients, even if the mesocolon be sutured to the junction, the lower leaf of the meso-

colon might constrict and, owing to the thickness of this structure, the constriction might lie well below the junction and thus approximate the loops. Mayo advocated that in stout patients the mesocolon should be sutured to the posterior wall of the stomach some distance from the junction. (4) Axial rotation. If the jejunum were rotated upon its long axis, while the junction was being made, symptoms of obstruction would develop almost at once.

(*d*) The opening badly planned. It was well realised that such devices as Murphy's button were often left in situ; that they left too narrow an opening; that they often caused hæmorrhage; that they were followed by ulceration and constriction; and that their insertion could not be carried out more quickly than the safe method of an anastomosis by suturing. The faults which were more likely to be found to-day in the formation of the opening were: (1) The opening too small. To allow for constriction in the healing the opening should be at least 3 to 3½ inches long when the intestine was held between the clamps—that is to say, its circumference should be 6 to 7 inches. (2) The opening too high. However the opening be placed, whether it be vertical, retro-peristaltic, or iso-peristaltic, the lower portion of the opening should reach nearly to the greater curvature. (3) The posterior wall united to the anterior wall. He had always been struck with the ease with which it would be possible to pick up the posterior wall in suturing the two anterior layers and had always taken care to avoid this pitfall. He had seen the condition in one case in which the symptoms returned 18 months after an operation by another surgeon. (4) The opening wrongly placed in regard to the constriction. The commonest fault was that an hour-glass stomach was overlooked when associated with pyloric obstruction, and a junction was made between the jejunum and the distal pouch, thus failing to overcome the obstruction in the middle of the stomach. The reverse of this might sometimes happen with a double constriction, an opening being made into the proximal pouch alone.

(*e*) Gastro-jejunal and jejunal ulcers arise. (1) Gastro-jejunal ulcer. His own experience supported the view that this form of ulceration was due to the presence of a piece of silk suture. In the three cases of his series in which this occurred he had used silk sutures for the outer layer and had been able to find the suture at the second operation. A similar suture had been found in three out of the four cases where the operation had been performed by other surgeons. Since he had been wholly using catgut he had not had an example of the condition. That the increase of acid was also a factor was shown by the fact that in all of his cases the original operation was for a pyloric ulcer, in which condition the free hydrochloric acid was much higher than with a lesser curve ulcer. The ulcers all commenced either anteriorly or at one extremity and they tended to become adherent and to perforate into the colon. He thought that their method of production was as follows: As the first layer of through-and-through catgut suture was approaching its termination the mucosa was hidden from view and slipped out of sight so that the through-and-through suture picked up only the muscular and peritoneal coats. When the silk embedding suture passed over this surface it would not be covered by mucosa and a raw surface would be left, in the base of which was an unabsorbable foreign material, and under the influence of excess of acid this gave rise to a chronic ulcer. Such an ulcer might be prevented by taking special care to include the last piece of mucosa in the through-and-through suture and to use a catgut suture for the embedding layer. (2) Jejunal ulcer. In his own series he had not yet met with a true jejunal ulcer, and many of the specimens he had seen described as jejunal ulcers were continuous with the gastro-jejunal junction. He thought, therefore, that the majority of these ulcers had always spread from the gastro-jejunal junction. A true jejunal ulcer appeared to be very rare and it was doubtful if it occurred when the anastomosis were performed correctly. It would also seem doubtful if an ulcer could be caused by the trauma due to the use of clamps, for acute ulcers of the stomach tended to heal rapidly, and one would assume that such a lesion in the surface of the jejunum would also heal if no foreign material were present.

(*f*) Hernia through the mesocolon. It was to prevent this complication that advice was always given that the mesocolon be sutured to the junction. He thought that this method of suturing was of more value in preventing slipping of the mesocolon than in preventing such a hernia.

Complications at Present Unexplained.

(*a*) Recurrence of the ulcer. Two groups of this complication might be recognised: (1) Due to faults as described above. In one of his cases in which symptoms recurred five months after excision of an ulcer on the lesser curve, and gastro-enterostomy had not been performed, a posterior ulcer was found at the lower part of the resection, and in the base of the ulcer a piece of silk was found, the recurrence in this case being due to causes similar to those producing a gastro-jejunal ulcer. If a perforated gastric ulcer was sutured, and no gastro-enterostomy were performed, the ulcer was likely to persist or recur. Two such cases occurred in his series. (2) Occasionally, when the technique seemed good, an ulcer might recur. The explanation was difficult to see, but it was possible that the ulcers were present at the first operation and were overlooked, and that they were not cured by a simple gastro-enterostomy.

(*b*) Persistence of the ulcer. An ulcer high up on the lesser curve would probably not be entirely cured by a posterior gastro-enterostomy, and it would be necessary either to excise the ulcer or to perform a partial gastrectomy. If the ulcer were too large or too adherent for this to be attempted the pylorus should be occluded and a gastro-enterostomy performed.

(*c*) Onset of carcinoma. In his experience the percentage of cases in which this happened was very low. It was possible that where carcinoma had apparently supervened after operation it might have been present in the original ulcer. On several occasions when he had performed a partial gastrectomy, on microscopical section a small patch of carcinoma had been seen.

Apart from the complications mentioned, which his figures showed to have been relatively rare, his experience had been that these patients progressed very favourably. He now saw all cases in a "follow through" department, and since it had been started had lost sight of less than 1 per cent. of them. About 80 per cent. of patients with gastric or duodenal ulcers were completely cured of their symptoms. Of the remainder, 3·2 per cent. had one of the lesions described above, which required operative treatment, while the rest showed but ill-defined attacks of dyspepsia, which were easily controlled by short courses of medical treatment.

A Scientific Operation.

Mr. C. RYALL said that the operation of gastro-enterostomy was founded on sound scientific lines and was as free from immediate risks as any simple abdominal operation; disappointing results were, in carefully selected cases, as rare as in other abdominal operations. That gastro-enterostomy cured duodenal and pyloric ulcers, and did so rapidly, was beyond argument. He had seen large inflammatory masses surrounding ulceration disappear, as well as the ulcer, in the course of two or three weeks. Gastro-enterostomy cured ulcers at the pyloric end of the stomach, but he was inclined to excision as well as short circuiting in ulcers away from the pylorus. He wondered whether the fact that some surgeons met with gastro-jejunal ulcers more frequently than others was due to a difference in their technique. Did the ulceration occur more frequently where the opening was small or did it follow any particular method of suturing? Union took place so rapidly, no matter how the suturing was applied, that surgeons naturally fell back on the quickest method of application. He did not favour bunching together all the coats of the stomach, as it did not tend to accuracy of apposition of the mucous membrane, but he considered that better results might be obtained by three layer sutures, a separate one thus being used for the accurate apposition of the mucous membrane. As to the use of thread, he agreed with Mr. Paterson that as a cause of gastro-jejunal ulceration it was unproven, though he himself used catgut for suturing the mucous membrane. He thought that simple ulcers of the stomach and its outlet were due to hyperacidity, and that this was cured and the ulcer healed as a result of short-circuiting; nevertheless, there was no reason why fresh ulceration should not occur, either in the stomach or its new outlet, should hyperacidity recur and remain unchecked.

Dr. A. F. HURST and Mr. G. GREY TURNER also contributed to the discussion.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

ACCESSORY FOOD FACTORS IN INFANT FEEDING.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 27th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair, when a discussion took place on the Influence of the Accessory Food Factors in Infant Feeding.

Dr. E. MELLANBY, who opened the discussion, touched on some of the more pressing problems concerned with the value of the antiscorbutic factor in infant feeding. It was desirable that authoritative statements should be made on the relative susceptibility of infants to this factor—whether, for instance, there were evidences of ill-health short of scurvy produced by a relative deficiency in the diet. Such symptoms might be widespread, although scurvy itself was uncommon. A point that might also be settled at the discussion was the necessity or otherwise of adding orange or swede juice to diets composed entirely of dried whole milk.

The Antirachitic Factor in Infants.

The rest of his remarks dealt with the part played by the antirachitic factor in infants. He briefly sketched the more recent results of animal experiments on rickets. The following points were discussed:—

(1) The importance of the antirachitic factor in respect to the age of the animal. The younger the animal the more important was a requisite amount of antirachitic accessory factor in the diet. After a certain age it had been impossible to produce rickets in puppies by reducing the antirachitic factor in the diet. Also cases of self cure of rickets in puppies occurred when the diet and other conditions remained constant. These facts showed that the vitamine was more important for the normal growth of bone at an early age, until, in fact, some essential process in the body was in good working order.

(2) The relation of the antirachitic factor to the energy-bearing portion of the diet. It was shown that more accessory factor was required to keep the growth of bone normal when the puppies ate more bread. The offending element of the diet was probably carbohydrate. On the other hand, evidence was accumulating which indicated that additional protein in the diet assisted any antirachitic factor present, so that the production of rickets, so far as diet was concerned, depended on a wrong balance between the amounts of protein, carbohydrate, and antirachitic accessory factor in the diet.

(3) The part played by exercise in the ætiology of rickets. The importance of muscular movements in relation to rickets was discussed and was shown to be secondary to diet. It was pointed out that the effects of exercise and protein could probably be associated in their action of assisting the antirachitic factor by the fact that both were stimulants to the metabolism.

(4) The importance of the animal experimental results to child nutrition. In this connexion the relative amount of rickets and bad teeth in the Jewish and Gentile children of Leeds (1902) according to the investigations of Mr. William Hall were discussed. Mr. Hall's findings as to the cause of the great differences were purely dietetic and wholly in agreement with the expectation based on the animal experiments recently carried out. The low infantile death-rate, absence of rickets, and production of perfect teeth in the inhabitants of the Island of Lewis were then mentioned as being almost certainly due to the diet of the people. The dreadful hygienic conditions of their houses did not prevent these excellent results seen in infant life in the island.

Growth Factors.

Professor D. NOEL PATON said that the physiologist would always be ready to acknowledge his indebtedness to the clinician whose work and observations had suggested to him so many of his most profitable lines of research, and he was trying to repay the debt by applying some part of his time to the solution of problems of importance to the clinician. In doing this it was his duty to present for the acceptance of his clinical brethren only those results which had been thoroughly tested, and he would remember that the man in practice was just as able as he to assess the value of the evidence presented and would not insult his intelligence by asking his acceptance of statements without that evidence being given. The contrary was what he objected to in the attitude of many physiologists to the present craze for vitamines, a horrible name, since we did not know that, even if they existed, they were amines, or had to do with life. Our knowledge of the subject could be briefly stated: 1. Hopkins, Willcox, Osborne, and Mendel had shown that minimal quantities of certain amino-acids were necessary for growth. They were the limiting factors for growth. 2. The same had been shown by MacCollum and others for inorganic substances, chiefly calcium and phosphorus. 3. In various animals it had been shown that the absence of some water-soluble food constituent or constituents led to arrest of growth and death, or to the onset of scurvy or beri-beri. 4. In rats and mice it had been shown that minimal quantities of certain fatty mixtures—e.g., of milk-fat or cod-liver oil—were necessary constituents of the diet for growth. With a deficient supply of these growth was arrested in these animals. In dogs, according to Mellanby, growth was not arrested, but rickets was produced. Of their effect on other animals we knew nothing. On such a basis had we any right to draw far-reaching conclusions? Why did not clinicians arrange a series of experiments in institutions to study the effects of these substances instead of being satisfied with personal experience or remaining content to argue from the divergent results in rats and puppies to the human subject?

Dietary Factors in Rickets.

His own work had been done on rickets and he would confine himself to the evidence that this was a disease due to want of vitamines. In doing so he would refer to the report of the Special Vitamines Committee of the Medical Research Committee. That part which dealt with rickets was certainly a request to accept statements unsupported by evidence. Dr. Leonard Findlay in 1908 reviewed the existing evidence, and recorded a series of experiments upon 16 puppies which he considered proved that confinement and not diet was the determining factor in causing rickets. He found that puppies fed on bread and water simply wasted and died without developing rickets, in the same way that rats wanting the fat-soluble substance wasted and died. All the eight puppies which were kept confined developed rickets; the five not confined, upon the same diet of porridge and milk, did not do so. Mellanby criticised the results on the supposition that Findlay gave only 175 c.cm. of milk, a purely gratuitous assumption. They had an abundance of milk. He further suggested that the diet was not a healthy one because two of the puppies died. It was the diet on which most of the puppies in Scotland were reared. How many of his 200 dogs died? His (the speaker's) criticism of Findlay's experiments was that only in one case were the confined puppies and the checks of the same litter, and it was unjustifiable to argue from results obtained from different litters, since the susceptibility of strains was varied.

The Vitamines Committee's Report.

The report of the Vitamines Committee was avowedly based on Mellanby's results. We could only judge of its value from the results which had been published. These appeared in THE LANCET of March 15th, 1919. He stated that he cleared the way for his dietary experiments by a series of experiments to show that other factors were not operative. These experiments he did not record and we could not estimate their value, but, since then, in a letter to the speaker, he had stated that they consisted in *(a)* repetition of exercises and bad hygienic conditions, poor ventilation, and darkness; *(b)* trying thorium diet; *(c)* removal of lymphatics to limbs; and *(d)* effect of reduction of oxidation by drugs. It was difficult to understand how they were expected to throw any light upon the development of rickets. Upon the influence of the dietary factors he had recorded observations upon 33 pups, 10 normal and 13 which developed rickets. Presumably the experiments selected for publication were not the least convincing of the series. When the records were examined it was found that the dogs grouped together *were not always of the same litter*. To contrast animals of different litters was, as already stated, wholly unjustifiable, since the susceptibility of strains to rickets varied very largely. Further, in his groups the pups were not always killed at the same age, and yet the calcium content of the bones was compared, although, as everyone knew, this varied with age. The same puppy was included in different groups.

In this small series of observations no less than 13 substances were tested, and conclusions were drawn as to which of these allowed and which prevented rickets. In the report of the Vitamines Committee a list of 13 substances which did not prevent and 11 which did prevent rickets was given, with no published evidence except that of Mellanby's paper. Certainly on such a basis it was ridiculous to ask any reasonable man to accept the conclusions (1) that rickets was a deficiency disease due to the absence of an accessory food factor identical with the fat-soluble substance; and (2) that certain specified articles of food prevented its onset, while others did not prevent it.

Professor Paton's Experiments.

The experiments which he (Professor Paton) and his collaborators had carried out, and which were recorded in the *British Medical Journal* of Dec. 7th, 1918, were made upon 17 puppies of two litters. Their main object was to get rickety pups and sound pups of the same litter for examination, but a test was also afforded of the relative influence of diet and open-air life. From each litter two pups were sent to the country, kept in a large yard, and fed upon oatmeal porridge and skimmed milk, so that each had about 2·8 g. of milk-fat per day. Those kept in the laboratory had whole milk containing during the first period of their growth 3 g. of milk-fat per day and during the latter period 6 g. In addition to this, three of the puppies had butter (not margarine) in an amount to yield, along with milk, 14 g. of milk-fat. The puppies kept in the country on the lower fat intake remained absolutely normal. All the puppies kept in the laboratory developed rickets, one of those receiving butter becoming most markedly affected. It had been suggested that puppies kept in the country got their fat-soluble substance by eating grass. Unfortunately for this theory the carnivorous alimentary canal did not digest grass, even when swallowed. It was generally vomited at once. It had further been argued that confinement might so depress digestion that the fat-soluble substance was not absorbed in the food, but there was no indication of disturbed digestion, and Mellanby had stated that confinement did not cause rickets.

In the Vitamines Committee's report no reference was made to Bull's interesting investigations of an epidemic of rickets among fox-hound puppies at Adelaide in 1912.[1] The kennel had previously been free from rickets. The epidemic when it broke out affected practically all the puppies. The animals had been fed on boiled meat and pollard, the only change being that before the outbreak the pollard had been substituted for wheaten meal. He found that the most potent factor in preventing and curing the condition was to remove the pups from the yard in which they had been kept. It was not until a new yard was prepared for the puppies that the occurrence of the disease was prevented, even when the old diet was continued.

Investigations on Negro Children.

The series of investigations which had been given the most prominence was that of Hess and Unger upon negro children in New York. According to the authors about 90 per cent. of these developed rickets. From observations upon 32 children they stated that the administration of 54 oz. of cod-liver oil in six months prevented the onset of rickets in 93 per cent. of the cases. Their tables had been largely used by the champions of the vitamine theory, but it would have been well had they read the paper. Ten out of the 33 children treated had rickets before the oil was administered, and they had merely improved during the six months under oil. As a matter of fact, 6 were noted as "unchanged" and 2 "progressed"—i.e., became worse. This hardly justified the statement as regards the prophylactic action of oil. Miss Ferguson, under the direction of Dr. Findlay, had repeated these observations upon 62 children of from 1½ to 12 months of age, giving them cod-liver oil to about 2 oz. per week (i.e., about the same amount as given by Hess and Unger) for about six months. The cases were examined before starting treatment and were all free from rickets. They were examined again at the end of six months by Dr. Findlay, who reported that out of 27 oil and 30 check cases present at the examination there were:—

	Oil cases.		Check cases.
Non-rachitic ...	23 = 85 per cent.	......	10 = 33 per cent.
Rachitic	3 = 11 ,,	......	18 = 60 ,,
Doubtful	1 = 4 ,,	......	2 = 7 ,,

Miss Ferguson, in 1917, undertook an investigation of the diets and social conditions of families in which rickets occurred and in which rickets had not occurred—47 families in all—of the same social class in the city of Glasgow, where rickets was very prevalent. She found no marked difference in the dietary habits; both sets of families used very small quantities of milk, the average in the non-rachitic families being 6·7 oz. per person per day, and in the rachitic families 4·7 oz. In quite a number of the non-rachitic families the milk consumed was as small in amount as in any of the rachitic. Mellanby criticised these results on the grounds that (1) such family studies throw no light on the feeding of infants, and (2) they show that in the families with rickets the children got less of "substances delaying or preventing rickets." He cannot have it both ways. The criticism of family diets made in the report of the Vitamines Committee that the amount of the proximate principles is given but not the actual foods used is untrue, so far as the Glasgow studies are concerned.

Criticism of the Findings of the Vitamines Committee.

Professor Paton then referred to the most recent publication by Hess and Unger on "The Clinical Rôle of the Fat-Soluble Vitamin; its Relation to Rickets."[2] It was a most cogent criticism of the findings of the Vitamines Committee, supported by a valuable series of observations. They showed that the bone changes in scurvy might simulate those of rickets. They found that rickets developed, notwithstanding an abundance of fresh air. They recorded a series of experiments to show that infants getting abundance of milk-fat became rickety, whilst others kept upon a fat-poor diet remained almost free from the disease. They concluded:

> "It would lead too far afield to discuss the various theories that have been advanced to account for the occurrence of rickets, and, moreover, it would not be profitable at the present time [illegible] the data are inadequate. There seem to be several causes at work rendering the unravelling of the problem so difficult that there is a difference of opinion, not only as to the particular dietary factor that is at fault, but even as to whether rickets is to be considered a disorder of dietetic origin. It should not be lost sight of that there is a prenatal factor

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[1] Journal of Comparative Pathology, vol. xxxi., 1918.

[2] Journal of the American Medical Association, Jan. 24th, 1920.

involved. The fact that the negro infant, living side by side with the white, in the larger cities, and obtaining milk from the same source develops rickets so frequently and so markedly, indicates that there are important influences to be reckoned with in addition to the food. ...... Rickets frequently develops in infants receiving too much milk rich in fats, proteins, and salts. It seems impossible to bring this fact into consonance with a deficiency disease, whatever may be its nature, using this term in the commonly accepted sense. Our study shows that the fat-soluble vitamin is not the controlling influence; that infants develop rickets while receiving a full amount of this principle, and that they do not manifest signs, although deprived of this vitamin for many months, at the most vulnerable period of their lives. It is impossible to interpret the contrary conclusion which Mellanby came to as the result of his pioneer experiments on dogs, or to accept the term 'fat-soluble vitamin' as synonymous with 'antirachitic factor,' as Hopkins and Chick would have us do. ...... There is a growing danger of attributing every unexplained growth impulse to the new attractive, but ill-defined, vitamins—of their sharing with the secretion of the endocrine glands the fate of becoming the dumping ground for every unidentified factor. It should be borne in mind that there are other little understood factors and food reactions."

Rickets had certainly not yet been proved to be a deficiency disease due to the lack of some fat-soluble substance, nor had it been proved to be due to lack of exercise, but it was directly correlated with overcrowding and confinement in insanitary houses. The possibility, suggested by Morporgo, had never been disproved that it was primarily an infective disease. It might be due to non-specific organisms, possibly of fæcal origin, in the same way as goitre had been shown by McCarrison to be due to such infections. Certainly the more scrupulously clean the kennels were kept the less seemed to be the tendency for pups to develop rickets. This was indicated by Bull's observations. What was wanted was a combined coördinated investigation of the disease from the clinical and from the experimental side. Rickets was so prevalent and was of such enormous importance from the economic standpoint that it was well worthy of the most serious study. In the interests of the nation he hoped that the Medical Research Committee would be able to institute such a comprehensive investigation.

Clinical Evidence in Favour of a Dietetic Causation of Rickets.

Dr. ROBERT HUTCHISON said that the causation of rickets had always been a puzzle to clinicians, but up to the present the advent of the experimental pathologist in the field had only served to darken counsel. In his opinion Dr. Mellanby had certainly made out a prima-facie case for the view that rickets was the result of the absence of some accessory substance from the diet, although it did not appear to be the ordinary fat-soluble A. On the other hand, Professor Paton's experiments had led to an opposite conclusion, nor apparently did rats develop rickets when fed on a diet devoid of the growth vitamine. It should further be remembered that Herter[3] had fed young pigs on a fat-free diet for prolonged periods, and although their nutrition suffered they did not develop anything even suggesting rickets. If the results of experiment differed in rats, puppies, and pigs, how could one apply them to babies? Clinical evidence was in favour of the disease being a dietetic one, for it could be cured by altering the diet, the other factors in the environment remaining as they were. The dietetic fault was certainly not an all-round deficiency, for rickets was, perhaps, commoner in overfed than in underfed children. It seemed rather to be caused by an ill-balanced diet, and particularly by one which contained relative excess of carbohydrates. How this caused rickets it was impossible to say, but even Dr. Mellanby was unable to say how the absence of a "vitamine" caused it either. If an accessory substance played any part at all it must be that it was required to counteract some defect in the diet, and not merely that it supplied in itself something that was essential and without which rickets would develop no matter what the composition of the diet was on the whole. The same was true of scurvy. Infants rarely developed scurvy on a diet of condensed milk alone, but if a starchy food were added to the condensed milk scurvy was very apt to appear. The antiscorbutic accessory substance must in some way actively counteract the bad qualities of such a diet and not merely supply something lacking, for it is equally lacking in the condensed milk alone. It might be necessary to assume this kind of action on the part of the accessory substances, but it was attaching to them rather a different rôle from that which earlier investigations had credited them with. He was of opinion that, as regards rickets at least, we wanted more evidence before calling in the action of a hypothetical accessory substance at all. It must be remembered that vitamines were the latest dietetic "stunt"; one must be careful not to push them too far and not to draw sweeping practical conclusions from our present very inadequate knowledge of them.

Dr. C. J. MARTIN thought that from the epidemiology of the disease and clinical experience of the effect of dietetic treatment, there was little room for doubt that rickets was a deficiency disease. Dr. Mellanby's work was of the first importance; it orientated future inquiry. Professor Paton's contribution to the discussion, whilst exhibiting great discontent with the word, was not, in his opinion, a serious assault upon the position taken up by Dr. Mellanby, which was a moderate one. He would underline the remarks of both as to the care required in applying results upon one species of animal to another or to man, and gave the following estimate of the minimal requirements of antiscorbutic in terms of lemon-juice per kilogramme per day as an illustration. These figures had been arrived at by laborious experiments by his colleagues at the Lister Institute. They were as follows: rat, a negligible quantity; guinea-pig, 4·5 c.cm.; monkey, 0·6 c.cm.; man, probably about 0·7 c.cm. In fact, all this vitamine work wanted putting upon a quantitative basis. Until this was done discordant conclusions as to general principles would inevitably be arrived at. Unfortunately, as long as the accessory food factors had not been isolated and identified only an approximate estimation was possible. Anyhow, it would take years of patient labour. For some years it had been attempted by his colleagues and others at the Lister Institute in the case of the water-soluble B and the antiscorbutic principles. This had been of great practical value, especially during the war, for it had been possible to determine the content in a number of foodstuffs of these two vitamines. As an instance he gave the following list from a paper by Dr. H. Chick and Dr. E. J. Dalyell recently published[4] setting forth, weight for weight, the relative antiscorbutic value of some common articles of diet, taking that of lemon-juice as 100.

Fresh raw cabbage leaves or expressed juice	110	Fresh germinated peas	30
Fresh raw lemon-juice... ...	100	,, raw carrot-juice	7·5
,, ,, orange ,, ...	100	,, ,, beet-juice less than	7·5
,, ,, swede ,, ...	60	,, ,, beef-juice ,, ,,	7·5
,, green beans	30	Potato, boiled 30 mins.	7·5
		New cow's milk...	1 to 1·5

Similarly, provided with a rough unit, it had been possible to determine the effect of heating, keeping, and the preservation of food upon these two vitamines with an error of plus or minus 50 per cent.

Orange-Juice and Beef-Suet Cream.

Dr. E. A. BARTON said that he was anxious to show two substances which were being used with considerable success at University College Hospital Infant Department. The first was an orange-juice which was dispensed to all infants on an artificial diet bereft of antiscorbutic vitamine. It was suggested to him by Miss Chick. The orange entire was minced and expressed in a tincture press. The essential oil which existed in the rind served to preserve the juice for many days and even weeks. During the period when oranges were scarce and juiceless he tried last year some vegetable juice freshly expressed, notably that of lettuces, but found that the juice had disastrous results, for the juice of vegetables was a first-rate culture-medium for organisms, and smelt abominably after even a few hours. Preservation or heating was impossible if the vitamine was to be active. It had been suggested that swede-juice should be tried, but poor women had no time to squeeze lettuces or scrape swedes, so during these few months the infants in his hands had to go without. The discovery of an efficient preservative for fresh vegetable juices had yet to be made.

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[3] Journ. of Exper. Med., 1893, iii., 293.

[4] Ueber die Gefahr des Skorbuts in Wien, Wiener klinische Wochenschrift, 1919, xxxii., 1219.

The second substance shown was a cream which, being made of beef suet, contained a considerable amount of fat-soluble A. Marylebone cream, made of linseed oil, which he had formerly used, lacked this antirachitic vitamine, and in view of the researches made two years ago, it was decided to make a synthetic beef-suet cream. The difficulty in making suet into a satisfactory emulsion lay in the high melting point of suet, but this was overcome by the addition of 12 per cent. olive oil. The cream contained 25 per cent. fat exclusive of the oil, a percentage as high as or higher than ordinary skimmed cream from milk; it mixed well with all dilutions of milk, was palatable, easily digested, and under the microscope was seen to be quite a satisfactory emulsion. It was not expensive; it was free from danger of tubercle, and was now made commercially as "University Cream." The cream was composed as follows:—

Beef suet	40 oz.	Benzoic acid	35 gr.
Olive oil	5 oz.	Decoction of Irish moss	70 fl. oz.
Syrup...	25 fl. oz.	Water to	1 gal.

The oil was added to the melted suet and the benzoic acid dissolved in the mixture. The decoction was heated to about 60° and placed in the emulsifier, and the fats were then added at about the same temperature. The emulsion was then worked up and the syrup and water were added last.

A Rival Cream.

Dr. ERIC PRITCHARD explained that he had a rival cream to offer which was made from a combination of oleo-fat, pea-nut, and other oils which presented a composition of neutral fats and fatty acids which corresponded very closely with those existing in butter-fat. It was an improvement on the original Marylebone creams, and could be used with fat-free milks without detriment to nutrition, for it contained, he believed, a liberal quantity of the fat-soluble A factor. Dealing with the general question of vitamines, he remarked that there was no fear that the work of Dr. Mellanby and others would not be seriously regarded by clinicians; the danger rather was that the public generally would believe that these new discoveries were the solution of too many dietetic problems. Clinicians would be grateful to experimental physiologists if the latter would help to classify the varieties of malnutrition which depended on excess or deficiency of any food factor; for his part he thought the excess diseases were far more common than the deficiency diseases. He regarded pure cases of the latter as clinical luxuries, because they were so immediately cured by the giving of the lacking food factor. He thought the application of the title antirachitic factor to the fat-soluble A vitamine most unfortunate and retrograde, because such a name implied that rickets could be both caused and cured by the withholding and giving of this substance.

The first group of cases of rickets which he personally had examined was in infants who were grossly overfed with cream. For his part he regarded rickets as a terminal result of practically all varieties of malnutrition occurring in the infant and young child, and of sufficient duration to produce the characteristic changes. Rickets had been proved to be caused by almost every possible error in feeding; it was not due to one definite cause as Dr. Mellanby suggested. The effects of chronic infections certainly played a part in its production, and this, he thought, was the explanation of the cessation of rickets among the puppies referred to by Professor Paton when they were removed from certain particular kennels. He believed that resistance to infective disease was lowered by deprivation of the fat-soluble A factor.

Dr. W. M. FELDMAN was of opinion that there was probably more than one factor responsible for the production of rickets. He disagreed with Professor Paton that close confinement was one of the principal causes of the disease, and also with Dr. Mellanby that the lack of a fat-soluble vitamine was the only factor. He quoted cases of rickets in children of well-to-do and intelligent parents who were brought up on the most hygienic principles as regards fresh air, exercise, and feeding, and who showed signs of rickets, whilst, on the other hand, many children who were brought up under the most unhygienic conditions failed to show evidence of the disease. Dr. Feldman believed that heredity probably played an important rôle.

Rickets amongst Jewish Children.

Dr. J. LAWSON DICK said that he had been carrying out observations with regard to rickets among the Jewish children in the East End of London. These children were fed on cow's milk, yet 80 per cent. of them showed evidence of rickets. It occurred in breast-fed children, many of whom were kept at the breast for from 12–18 months, yet no one could say that there was likely to be lack of fat in the milk where Jewish mothers were concerned. On the other hand, there was no rickets in China or India, where the children were kept for a very long time at the breast, so that even two successive children might be breast-fed synchronously. An ætiology which presupposed a deficiency in fat-soluble substance was contrary to clinical experience, for there was an abundance of fat in children who were prone to rickets. Geographical considerations revealed that rickets was confined to the temperate zone, which was also that of greatest industrial activity. He considered that it was difficult to exclude a sufficient amount of vitamines from the diet of children in this country, while in China and Japan, where they were fed largely on rice, there was no rickets. In experimental observations on dogs it was difficult to exclude the incidence of rickets, but he thought that the changes in the teeth, which had been ascribed to rickets in the experimental studies of Dr. Mellanby, were not the changes of true rickets. He urged that rickets should be studied with a greater breadth of view.

Reply on the Discussion.

Dr. MELLANBY, in his reply, said that the question which Professor Noel Paton had raised as to the number of deaths among the dogs which he had experimented upon was beside the point, whereas the number of deaths among the dogs in the "confinement" experiments of Findlay was important in connexion with the interpretation of the results. With regard to the evidences, he pointed out that the investigations were as yet far from finished, and no complete account had yet been published, but his experiments, as far as they had proceeded, were open to inspection by anyone who wished. He wished to disclaim any responsibility for the exaggerated accounts of the work which had appeared.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on March 4th, Mr. J. D. MALCOLM, the President, being in the chair.

Interstitial Ectopic Gestation.

Mr. ZACHARY COPE showed a specimen of Interstitial Ectopic Gestation which had ruptured at the end of the fourth month of pregnancy. The patient was 40 years old, and had had three previous pregnancies, which had terminated in miscarriages at the seventh, fifth, and second month of pregnancy. Six years had elapsed since the last miscarriage. Her present illness started with acute abdominal pain and vomiting 36 hours prior to admission. When admitted to hospital ruptured extra-uterine gestation was diagnosed and confirmed at operation. Supravaginal hysterectomy was performed, and the patient made a speedy recovery. The specimen showed a gestation sac about 4 in. by 2½ in. by 2¼ in. with a fœtus corresponding to a three months pregnancy. The left Fallopian tube and round ligament were attached to the outer side of the sac, which had no connexion with the uterine cavity. There was a rupture of the sac on the postero-superior aspect where the placenta was situated. Mr. Cope said that less than a hundred cases of the kind had been recorded. In this case the patient was older than usual, the sac had ruptured rather later than was customary, and surgical advice was sought after a longer duration of acute symptoms than had been noted in most of the recorded cases. In cases seen so late as the fourth month he was of opinion that supra-vaginal hysterectomy was the soundest surgical procedure.

The PRESIDENT said that there was a possible difference of opinion on the interesting case shown. He suspected a cornual pregnancy.

Dr. T. W. EDEN suggested that the specimen should be referred to the Pathological Committee, and that Mr. Cope should obtain sections of the decidua to decide the point.

Mr. COPE thanked the members of the section for the interest shown in his specimen, of which he was having a drawing made, and would be glad to refer it to the Pathological Committee. Microscopic sections were being made.

Dr. S. GORDON LUKER read an account of a case of

Rupture of the Bladder Associated with a Retroverted Gravid Uterus.

The patient, a 4-para, aged 38, was admitted to the London Hospital complaining of acute abdominal pain and vomiting; she stated that she had felt something burst in her stomach that day; there had been a previous attack of abdominal pain with some difficulty in micturition. She was 14 weeks pregnant. Laparotomy was performed and a linear tear 1 inch long was found in the posterior wall of the bladder. The tear was sutured and the abdomen closed with drainage. The bladder was healthy. The patient aborted two days later, but otherwise made an uneventful recovery.

The PRESIDENT said he had never heard of a similar case. The good result showed how efficacious prompt skilful treatment could be, and also of what little consequence a ruptured bladder might be under certain circumstances.

Mr. COMYNS BERKELEY asked whether there was any gangrenous cystitis, as the rupture of a healthy bladder was not common.

Dr. LUKER, in reply, said that the bladder was apparently quite healthy.

Blood Transfusion in Secondary Hæmorrhage.

Dr. LUKER then described a case of Secondary Hæmorrhage from a Laceration of the Cervix Uteri of a Puerperal Woman treated by blood transfusion and panhysterectomy. In this case the patient was a 4-para, aged 30. Labour had been prolonged, and she had been delivered with forceps by her medical attendant before the os uteri was fully dilated. A severe hæmorrhage occurred on the ninth day of the puerperium, and this recurred on the eleventh day; she was then sent up to the London Hospital. On examination under anæsthesia a tear 4 cm. long was seen on the left side of the cervix; the tear was septic but not bleeding; exploration of the uterus was negative; a hot douche was given and the cervix was plugged. Two further hæmorrhages occurred at intervals of about 24 hours, and after the second the patient was almost pulseless. Blood transfusion (1 pint of citrated blood) and panhysterectomy were performed and the patient survived and is now in good health.

The PRESIDENT and Mr. EARDLEY HOLLAND congratulated Dr. Luker on the courageous operation. Mr. Holland also suggested that it might not be clear from the paper that the blood came from a branch of the uterine artery and not from the interior of the uterus. He had had the privilege of seeing the case and knew that the bleeding was from the artery.

Dr. LAPTHORNE SMITH said he had removed a uterus for sepsis 40 years ago, and the patient recovered. In early cases patients did recover with this treatment, but in late cases they died. It was an important field for further investigation.

Dr. EDEN said that the important point was the laceration of 4 cm. long. It was clearly right to remove the uterus.

Dr. H. RUSSELL ANDREWS recalled a patient sent into the London Hospital two days after a four months fœtus had been removed by rapid dilatation of the cervix with Hegar's dilators. The patient had lost much blood. The speaker had removed the greater part of the fœtal skull from the right broad ligament. After 48 hours a secondary severe hæmorrhage nearly killed the patient. He put in plugging; the patient developed a mass in the right iliac fossa, chiefly cellulitis and not hæmatoma. Another hæmorrhage 48 hours after made him debate whether to remove the uterus, but he was doubtful if the patient would survive the operation. However, no more bleeding occurred.

Dr. LUKER, in reply, regretted that various points had not been made quite clear. The tear in the uterus was septic at the first examination, and later a spurting artery was actually seen in the cervix. There was no possibility of suture owing to the sepsis.

Mr. GORDON LEY read a paper on an Analysis of 50 Cases of Utero-placental Apoplexy (Accidental Hæmorrhage).

TUBERCULOSIS SOCIETY.

THE NEED FOR A DIPLOMA IN TUBERCULOSIS.

AT a general meeting of this society held on Feb. 21st, Dr. H. DE CARLE WOODCOCK, the President, being in the chair, Dr. HALLIDAY SUTHERLAND opened a discussion upon the Need for a Diploma in Tuberculosis. He said that, as in other specialised branches of medicine, the public should be protected against inefficiency by fixing a minimum of knowledge in tuberculosis as essential for holding responsible positions in the health service of the country. It was not sufficiently recognised that tuberculosis entered into every phase of life from early youth to old age, and this scant attention had resulted both in faulty and late diagnosis. This state of affairs must be changed before any real progress could be made in the campaign. Little was taught and but little required in a student's passage through the ordinary degree for medicine, and in the curriculums of most schools only two or three lectures at most were given and no practical experience exacted. Dr. Sutherland referred to the recommendations of the Interdepartmental Committee of 1912, and deplored the fact that the most important of these had never been put into effect. He considered that practitioners should attend dispensaries both for study and help; that dispensary teaching should be brought into every medical school; that tuberculosis officers should have had general and special experience before their appointment; that tuberculosis workers should have at least one month's post-graduate study in every three years. These suggestions were all embodied in the Committee's report, and they would go a long way to overcoming the present difficulties. A great deal of harm was done by men going into the tuberculosis service who did not gain the confidence of the general practitioner, which was so essential, with resulting lack of uniformity of methods and records. The sanatorium and dispensary have not failed in principle, but rather the personnel has been found wanting. There were too few places at which a proper course of instruction in tuberculosis could be obtained; Edinburgh had the only chair and Glasgow the only demonstratorship in tuberculosis; the number of teaching centres should be increased and the course should consist of at least 40 lectures, with practical demonstration. He thought that the teaching would be more successful if at the end of the course there was a diploma to be obtained, constituting a hall-mark, which local authorities might demand of applicants before appointment.

Discussion.

The PRESIDENT thought a diploma essential; it would settle the dispute with the medical officers of health. He had tried to get tuberculosis brought more into the curriculum of the University of Leeds, but had failed, and considered that public opinion must be sought in order to get recognition of its importance.

Sir HENRY GAUVAIN said that there were officers at present holding responsible positions in sanatoriums who had never seen the inside of a dispensary, and the converse could be said of some tuberculosis officers. Many men who had been down to Alton admitted that they did not know that they ought to be familiar with surgical tuberculosis.

Dr. J. SORLEY opposed the proposal for a diploma, but considered that the Interdepartmental Committee's recommendations should be put into force. He was not in favour of picking out one disease more than another, and thought that the D.P.H. should embrace all subjects of public health. If not the D.P.H., then the M.R.C.P. would give the necessary status and confidence.

Dr. HORACE WILSON thought tuberculosis too big a subject to be included in the D.P.H., and that a diploma was needed to prevent unsuitable men from throwing discredit on the service.

Dr. NATHAN RAW, M.P., said that tuberculosis demanded the widest study, and the tuberculosis officer must have long clinical study to fit him for his work. He did not think the time was ripe for a special diploma, but the interest of medical schools should be obtained and teachers should be appointed. When this was done, and the men had been taught, the diploma would come as a matter of course. The Medico-Psychological Society had at one time created a diploma, but had failed to enforce it. He did not think it would be long before there was a separate department in the Ministry of Health for tuberculosis.

Dr. HALLIDAY SUTHERLAND replying, agreed that the diploma would help to settle the outstanding differences with the medical officers of health, and would work in the direction of a separate service. Theory was not enough to produce efficiency, but practice would develop better on a sound theoretic basis.

LIVERPOOL MEDICAL INSTITUTION.—At a meeting of the Pathological Section held on Feb. 20th, with Dr. J. E. Gemmell, the President, in the chair, Dr. R. Stenhouse Williams read a note on the Bacterial Content and Keeping Qualities of Clean Milk Produced for Commercial Purposes. He presented the results of work upon methods of milk production which had been carried out by Miss K. Freear and Miss F. Knight at the Research Institute in Dairying at University College, Reading. A series of weekly examinations of clean-bottled milk produced for commercial purposes, extending from November, 1916, to December, 1918, demonstrated that the bacterial content of such milk only rose above the 10,000 limit on three occasions, and was only really unsatisfactory in one instance. These results were obtained with milk taken in a special milking shed from washed cows, by clean workers, in steam-sterilised vessels. The cost and upkeep of a special milking shed was an added charge on the price of milk, and further experiments were detailed which demonstrated the possibility of producing clean milk in an ordinary cow byre. From these experiments the following facts emerged: (1) it was possible to produce clean milk in an ordinary cow byre; (2) to ensure success the cows should be clipped and washed, the workers clean, and the utensils steam-sterilised; (3) the covered milk bucket, when properly used, was of great assistance in keeping out dirt from the milk, but, in the hands of unskilled workers, might be an added source of contamination to the milk. Dr. Williams laid stress on the importance to the dairy farmer of this last observation. Dr. Williams further contributed a paper on the Presence of Tubercle Bacilli in the Fæces of Apparently Healthy Cows. He recorded an investigation carried out by himself, in collaboration with Mr. W. A. Hoy, on behalf of the Medical Research Committee. It was shown that about 2 per cent. of apparently healthy cows had been found to be excreting tubercle bacilli in the fæces. Five such cows had been found in four of the 14 farms in which it had been possible to examine the fæces of nearly all the cows in milk. The results were subject to a considerable margin of error, inasmuch as each cow was examined on a single occasion, only a very small fraction of the daily excreta could be tested, and the method of examination (antiformin) adopted in the earlier stages of the work did not appear to be so satisfactory as the method (Petroff) finally utilised. He showed that the excreta of such cows, when kept in a dark cellar, remained infective for at least 12 months, and, when spread upon pasture land or added to liquid manure, remained infective for at least four months. The possible influence of such material upon the health of other beasts in the farm was pointed out.—Both note and paper were copiously illustrated by charts.

Reviews and Notices of Books.

HISTORY OF THE GREAT WAR: NAVAL OPERATIONS.

Vol. I. Based on Official Documents. By Direction of the Historical Section of the Committee of Imperial Defence. By Sir JULIAN S. CORBETT. London and New York: Longmans, Green and Co. 1920. Pp. 470 and maps. 17*s.* 6*d.*

THE first volume of the History of the Great War in regard to naval operations has been issued this week, written by Sir Julian S. Corbett. The history is based on official documents to which the Lords Commissioners of the Admiralty have given access, though the presentation of the facts is, of course, the author's own. The period dealt with includes the preparations for war during the years immediately preceding the outbreak of hostilities, and the progress of the naval operations down to the time when Great Britain secured a working command of the ocean trade-routes by the Battle of the Falklands on Dec. 8th, 1914. The work is written in collaboration with the staff of the Historical Section of the Committee of Imperial Defence, and it is hoped will be complete in four or five volumes. Separate sections will appear on the effect of naval operations on seaborne trade, by Mr. C. E. Fayle, and on the Merchant Navy by Mr. Archibald Hurd.

The time-period covered by this large and important volume is comparatively short, if we except pre-war references, but Sir Julian Corbett has been at pains to explain the mutual connexion and meaning of the operations which he describes, as well as their policy and relations to diplomatic activity and military exigencies. In this way we obtain a full and satisfactory narrative, which could not with advantage have been abbreviated to make the size of the book proportionate to the time concerned. The story, as he sets it out, is one of high endeavour, great performance, and hideous disappointments, as well as of national courage and enterprise which rose superior to these disappointments.

The style is so admirable in its clearness, and the events so sharp with interest, that most readers will read the book from cover to cover, even though first turning to such chapters as those which describe the development of the German submarine tactics, the operations of our Fleet on the Belgian coast, or the exploits of the *Karlsruhe*, *Emden*, and *Koenigsberg*. At last we have a consecutive story of the location, chase, and escape of the *Goeben*, described by Sir Julian Corbett as a situation which "opened in so promising a way that it might well have resulted in a success priceless at the outbreak of the war," but which culminated in severe disappointment. He considers that the whole blame did not rest on the shoulders of the admiral, rapid changes in the situation making it impossible for the Admiralty to keep him adequately informed. But of the fact that the *Goeben* was able to enter the Dardanelles in safety, Sir Julian Corbett, speaking of German tactics, says: "So completely, indeed, did the risky venture turn a desperate situation into one of high moral and material advantage, that for the credit of German statemanship it goes far to balance the cardinal blunder of attacking France through Belgium." Such episodes as the Gorleston raid, the crossing of the Pacific by Admiral von Spee, and the closing chapters narrating operations leading up to the Battle of the Falklands will be read with the deepest interest.

Practically nothing is said about the naval medical establishment, but the medical history of the war is appearing in the *Journal of the Royal Naval Medical Service*.

In a separate case with the book are published maps and charts illustrating some of the episodes where such assistance is necessary to their comprehension, while the volume itself also has admirable maps, plans, and diagrams, the Battle of the Falklands being elaborately explained by their means.

A GUIDE TO GYNÆCOLOGY IN GENERAL PRACTICE.

Second edition. By COMYNS BERKELEY, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., Obstetrical and Gynæcological Surgeon to Middlesex Hospital, &c.; and VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Assistant Obstetrical and Gynæcological Surgeon to Middlesex Hospital, &c. London: Henry Frowde. 1919. Pp. 467. 31*s*.

THIS book is written for the practitioner to assist him in supplementing the knowledge of his subject, obtained during his studentship, with a practical understanding of its clinical intricacies. The subject-matter is arranged in a natural sequence: Part I. is occupied with Examination Methods; Parts II. and III. with a consideration of the Significance of Symptoms and the Interpretation of Physical Signs; and in Part IV. the various Methods of Treatment are described. In Part V. a very full account of the Medico-legal Aspects of Gynæcology is included, and this is one of the most useful sections in the book. It is a subject at times of considerable importance to the practitioner and one upon which there is very little in the ordinary text-books of forensic medicine to guide him when in difficulties. All the questions associated with such conditions as nullity of marriage, rape, criminal abortion, evidence of pregnancy, foreign bodies left in the abdomen and other cavities, and possible claims for compensation in connexion with gynæcological conditions are fully considered, and sound advice is given.

The arrangement of the whole work is particularly useful and the various symptoms and physical signs are discussed in very complete detail, so that there is no condition likely to be met with in a gynæcological case about which the practitioner will not obtain real help and guidance from this work. In the new edition the part dealing with Criminal Abortion has been exhaustively revised, and sections on Radium and X Ray Treatment have been added. The authors have duplicated their prescriptions according to the ingenious method suggested by Dr. Verdon Roe. He has pointed out that the figures indicating the number of grammes and cubic centimetres in a prescription for 15 doses are the same as those indicating the number of grains and minims for a single dose according to the English system. We notice one or two obvious misprints in these prescriptions. The illustrations are very good and well reproduced. We could not, however, agree with the method of bimanual abdominal palpation as represented in Fig. 16, as the whole essence of successful abdominal palpation is the use of the palms of the hands and not of the tips of the fingers. Why, we wonder, do the authors use the unusual term, "palpation nephroleptique?"

It is interesting to find the statement that dilatation of the cervix cures some 90 per cent. of cases of spasmodic dysmenorrhœa, while in another well-known and widely read English text-book on gynæcology we are told that this operation is practically useless for this condition. A considerable space is devoted to the advantages of enucleation of fibroid tumours; in this we fancy the author's teaching is opposed to that of the majority of English gynæcological surgeons. The book is arranged in a distinctly novel manner, is interesting to read, and should prove of great service to the practitioner.

TOXINES ET ANTITOXINES.

Par M. NICOLLE, E. CÉSARI, C. JOUAN. Paris: Masson et Cie. 1919. Pp. 123. 5 francs.

AS we gather from the preface, this monograph is a résumé of a large number of original articles contributed to French scientific journals over a period of many years, by the authors whose names appear on the cover of the book and by some of their colleagues. The complete bibliography of these occasional articles is given in the front of the monograph before us. The work itself is a simple, lucid account, systematically arranged, of toxins and their antibodies. There are no laboratory details and no discursive accounts of theories. The first half of the book deals with the principal characteristics of toxins, both "soluble" and "solid" (i.e., filtrates and bacteria respectively). The second half deals with hypersensitiveness, anaphylaxis, the various antibodies, &c., and closes with a comprehensive chapter on the general conception of antigens and antibodies.

The book is written on an essentially personal note expressing the views of the authors. It is, moreover, characterised throughout by a clarity of thought and by a systematised arrangement of text which other writers on immunity might very well copy. In common with many others of these admirable little French monographs the work contains no subject index.

THE ENGINES OF THE HUMAN BODY.

By ARTHUR KEITH, M.D., LL.D., F.R.S. London: Williams and Norgate. 1920. Pp. 284. 12*s*. 6*d*.

THIS book contains the substance of the lectures which Professor Keith delivered at the Royal Institution during the Christmas vacation, 1916–17. From first to last the structure and functions of the various parts of the human body are compared, very closely and ingeniously, to the creations of the mechanical engineer. Several writers have drawn comparisons between the human body and an engine, but few have attempted to carry the comparison so far, and none have proceeded to interpret in such a clear and fascinating manner the details of function which Professor Keith has incorporated into this interesting story.

It is a great achievement to overcome so simply one of the chief difficulties in teaching popular anatomy—in the absence of information derived from dissecting, to make clear the mechanism of the numerous activities of all the systems and their inter-relationship, without obscuring the issue by lengthy descriptions and collections of facts about the details of structure. On this point teachers of anatomy in our medical schools have much to learn from Professor Keith, since only too frequently instruction in anatomy consists of a vast accumulation of data with little or no regard to the bearing of structure upon function. "The Engines of the Human Body," although written chiefly for the general reader, indirectly demonstrates the advantages to be gained by anatomists ceasing to be mere purveyors of fact about the cadaver; it furthermore contains many suggestions for the attainment of this improvement. Popular anatomy has to refer to the living; it is obviously of even greater importance that anatomy for students of medicine should do so too.

We therefore suggest that this book may be read with advantage, although for different reasons, by the anatomist as well as the general reader. However ingeniously popular anatomy may be presented it must inevitably have very definite limitations, which emphasise the importance of familiarity by dissection with the organs and tissues of the body. When considering the teaching of popular anatomy it is always apparent that no description, illustration, or even model can replace the method of acquiring, by the senses of sight and touch, an accurate knowledge of the subject and a true sense of proportion.

THE FROHSE ANATOMICAL CHARTS.

American edition. London and Edinburgh: W. and A. K. Johnston; Chicago: A. J. Nystrom and Co. Seven plates, each 42 in. by 64 in. Price, complete, mounted on cotton, £11. Single plates £1 10*s*. each.

THIS well-known series of plates has been redrawn and revised by Professor Max Brödel, of Johns Hopkins Medical School, who has also added some new diagrams of the heart and circulatory system and of the internal structure of the ear. The seven plates of the new series contain respectively (1) the human skeleton; (2) muscles; (3) nervous and circulatory system; (4) circulation diagram, the heart, blood-vessels, skin; (5) the ear and the eye; (6) the viscera; (7) the teeth and section through the head. Most of the drawings are life-size, and in many cases separate organs and tissues are shown greatly magnified. A key is supplied giving a comprehensive list in Latin and English of the various parts of the body. The lithographing and colouring are admirably done, and there is advantage in the arrangement which enables comparison to be made between related subjects.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES.

By E. R. STITT. Third edition. London: H. K. Lewis and Co., Ltd. 1919. With 119 illustrations and 1 plate. Pp. xvi. + 534. 14*s.*

THIS book has now reached its third edition and may be consulted with advantage by all students of tropical medicine. It will be found to contain a mass of interesting material, fairly well up to date and instructive. Much has recently been written on diseases of a tropical nature, but even so it is extraordinary how little that is new has really been evolved. The treatment of malaria, for example, stands at the present moment much where it stood 20 years ago, while dysentery has been written on ad nauseam without any proportionate light being thrown upon its therapeutics. There is a tendency here and there in the book to ignore older work for more recent observations, a fault which might have been avoided by a closer study of the literature. This is specially noticeable in the parts dealing with filariasis and ulcerating granuloma. No mention is made of the work of the South Americans and of Low and Newham on the treatment of the latter disease with intravenous injections of antimony, though Breinl's name is mentioned. On the other hand, the dysentery treatment is quite out of date. Emetine bismuth iodide is not even mentioned, and none of Dobell's recent work on the amœbæ inhabiting the intestine of man is incorporated in the text.

SPRING-TIME AND OTHER ESSAYS.

By Sir FRANCIS DARWIN, F.R.S. London: John Murray. 1920. Pp. 242. 7*s.* 6*d.* net.

Sir Francis Darwin is known as a skilled botanist, and as one who worthily carries on the traditions of a family which has produced more able men of science than perhaps any other single family in the world. He was educated for the medical profession, and got as far as taking his M.B. degree at Cambridge, but at the suggestion of Dr. Klein he gave up further study of medicine and became assistant to his father.

The book now before us is a very good sample of that class of book which used to be called "Diversions of a ——" or "Idlings of a ——," the blank being filled up according to the profession or calling of the author. On the whole, we think that the botanical or quasi-botanical papers show the author at his best. Many of the essays are reviews, or what are apparently reviews, though they consist chiefly of excerpts from the books in question. One particularly charming paper is entitled "Recollections," its only fault being that there is not enough of them. Another deals with Sir Norman Moore's monumental History of St. Bartholomew's Hospital, which should certainly send any reader to the original. Yet a third talks pleasantly about Some Characters in Fiction. Sir Francis Darwin, we think rightly, gives the palm to Thackeray for the names of his characters, only we do not always agree with his choice. For instance, he is "particularly fond of Sir Lapin Warren, whose wife was just on the point of having her thirteenth child"; and also of the Revd. Felix Rabbits, who had 13 daughters. To our thinking these names savour too much of the harlequinade nomenclature of the old-fashioned pantomime. Everyone over 50 will remember the names of A. Pill, Chemist, or D. R. Y. Sand, Grocer, which used to appear on the back cloth. One of the best collection of Thackerayan names is the list given of guests as yelled by the usher in "A Dinner in the City" thus, "Mr. Hoggin! The Right Honourable the Earl of Bareacres! Mr. Snog! Mr. Braddle! Mr. Alderman Moodle! Mr. Justice Bunker! Lieutenant-General Sir Roger Bluff! Colonel Tucker! Mr. Tims!" They are so exactly the names that are heard on such occasions, and the rhythm of the collocation is perfect. But the cream of the book is to be found in the three essays dealing with plants—namely, "Spring-time," "The Traditional Names of English Plants," and "A Procession of Flowers." Here are the charm of the country, the knowledge of the skilled botanist, and a picture of the never ceasing wonder of the annual renewal of life.

HOME EXERCISES FOR SPINAL CURVATURES.

By R. TIMBERG, M.R.C.S., G.D. (Stockholm). Second edition. London: W. Heinemann (Medical Books), Ltd. 1920. Illustrated. Pp. 67. 6*s.* net.

THIS little book has a definite object, and the author wisely keeps that object in mind from beginning to end. The theme being the description of certain exercises, all extraneous matter is ruled out, save that which is essential to the proper understanding of them. The exercises are well selected from those in use in the department for physical remedies at St. Thomas's Hospital; they are described with precise detail and illustrated by a series of well-executed photographs. No attempt is made to theorise on spinal curvature or to discuss the relative merits of various forms of treatment. All reference is omitted to exercises which cannot be performed without help or, after preliminary instruction, without supervision. Thus the book is elementary and, as such, is just what is needed. The treatment of spinal curvature is of great importance. Children do not "grow out of it"; if disregarded it becomes progressively worse. Skilled treatment is essential, but success depends on voluntary effort at home between the periods of skilled help and instruction. It is to enable medical men and parents to guide this voluntary effort into proper channels that this book was written, and it will be found a sure and safe guide.

PRAKTISCHE BAKTERIOLOGIE.

Für Ärzte und Studierende. Von Dr. L. PANETH. Berlin and Vienna: Urban and Schwarzenberg. Pp. 158. 1920. M.8.

THIS small volume is an elementary introduction to practical bacteriology. It gives short accounts of ordinary bacteriological and serological technique, the preparation of media, and the different methods of staining bacteria. A special feature is made of the methods of isolating and identifying the organisms of typhoid, dysentery, and cholera. The main characteristics of the commoner organisms are described, and a description of the Wassermann reaction is included. The book is well printed. There are few illustrations.

THE FOUNDATIONS OF MUSIC.

By HENRY J. WATT, D. Phil. Cambridge: University Press. 1920. Pp. 240. 18*s.*

THE scope of Dr. Watt's book lies beyond the realms of physics and of physiology. He deals solely with the psychical appreciation of musical sounds, and does so ingeniously, profoundly, and with a measure of success. The foundations which he has laid stand in the darker recesses of musical theory, and involve assumptions which themselves call for extensive and detailed examination before they can be accepted as a basis for the further arguments. But for those with sufficient musical knowledge and interest in the theory of music, and with the capacity for hard and sustained psychological speculation, the book will well repay careful study. It is a real contribution to the systematic investigation of the psychology of one of the most obscure special senses, for the musical sense may be considered psychologically as something altogether beyond the sense of simple hearing.

JOURNALS.

British Journal of Experimental Pathology. Vol. I., No. 1. February, 1920. London: H. K. Lewis and Co., Ltd. Annual Subscription, £2; single numbers, 7*s.* 6*d.*—This is the first number of a new journal devoted to experimental pathology. It is to be published bimonthly, under the editorship of Drs. C. H. Browning, P. Fildes, W. E. Gye, E. L. Kennaway, E. H. Kettle, J. McIntosh, J. A. Murray, W. J. Tulloch, and C. M. Wilson. The editors hope to be able to provide early publication of papers, a boon to workers in pathology, who have long felt the disadvantages of delayed publication of their work. The journal comprises many new and interesting features—new at any rate in British scientific journals. It provides space, for example, in each issue for a short description of new methods or neat "tips" which would not ordinarily be printed as a "paper"; it promises the occasional publication of critical reviews upon pathological subjects which, in the opinion of the editors, may be in need of critical survey. This, if competently and fairly done, will render the journal of inestimable value to laboratory workers and, one might add, to clinicians who take any interest in the growth of exact knowledge. The editors stress the word experimental in the title of the journal as well as in their notice of the scope of papers to be published. It appears, therefore, that the purely descriptive work of morbid anatomy will be left to be dealt with by existing journals. A natural consequence of this attitude is found in the close association of some of our leading physiologists with the journal; of the 16 eminent medical scientists whose names appear on the cover as supporting the new venture four are famous physiologists. But, curiously enough, there is not one professional physiologist in the list of editors. This will no doubt be altered in the future.

W. M. Bayliss, F.R.S.: Is Hæmolysed Blood Toxic? Professor Bayliss discusses this question and brings forward evidence to show that hæmolysis in itself is harmless. The practical importance of the matter lies in the common belief that "the serious results of transfusion of blood into a patient whose blood hæmolyses the corpuscles of that introduced" are due to the hæmolysis. The experiments upon which the belief that hæmolysed blood is toxic have been performed with rabbits. Professor Bayliss points out that rabbits are not suitable animals for such experiments owing to their aptitude to intra-vascular clotting. In the cat and dog homologous hæmolysed blood is, with very rare exceptions, innocuous. The ill-effects occasionally noted in blood transfusions are "an aspect of the action of foreign serum protein analogous to that responsible for anaphylactic shock." It is shown in the paper that hæmoglobin dissolved in plasma can act as an oxygen carrier.—The Determination of the Reaction of Bacteriological Culture Media, by J. McIntosh, M.D., and W. A. M. Smart, B.Sc. This is now one of the most popular subjects of bacteriological research. The method of standardising by titration, using phenolphthalein as indicator, and of expressing the final condition of the medium by the simple device introduced by Eyre, is no longer regarded as sufficient. The majority of bacteriologists now endeavour to obtain a more exact standardisation, either by means of the hydrogen electrode or by the use of a scale of indicators, which change colours at definite concentrations of hydrogen ions. Colorimetric methods are generally favoured, and have been recently popularised by the Medical Research Committee. In the paper under notice the authors propose titration of small volumes of media at room temperature. They recommend thymophthalein as indicator owing to the sharpness of the change of colour at a point on the alkaline side of neutrality. The paper contains a clear account of simple methods of preparing reliable media. The discussion of the ionic theory, mass action, and Guldberg and Waage's law might have been omitted; a reference to a standard text-book would have sufficed.—On Sympathetic Fever and Hyperpyrexial Heat Stroke, by W. Cramer. When suitable doses of β-tetrahydronaphthylamine are injected into animals, prolonged sympathetic stimulation associated with over-activity of the thyroid - adrenal apparatus is produced. Pyrexia is induced by increased heat-production accompanied by diminished heat loss; this pyrexia is called by the author sympathetic fever. The degree of pyrexia is chiefly dependent upon the climatic conditions of environment. Hyperpyrexia may be brought about by over-crowding the animals or by any means which interferes with the rate of cooling. This hyperpyrexia is similar to heat-stroke in man, which is discussed both as to its genesis and its rational treatment. The paper is full of information on the subject and is closely reasoned. It should be of particular value to those interested in ventilation and in factory and tropical conditions.

The Serological Classification of Meningococci, by P. Fildes, M.B. The author shows that meningococci may be divided into two distinct serological groups, independent of the arbitrary selection of standards.—On the Testing of Renal Efficiency, with Observations on the "Urea Coefficient," by H. Maclean and O. L. V. de Wesselow. Dr. Maclean has previously shown that in 50,000 apparently fit soldiers protein may be found in the urine of nearly 6 per cent., and that 2 per cent. show well-marked albuminuria. The presence of albumin, even when associated with casts, is not of great value as an indication of renal efficiency—the most important point the clinician has to decide in cases of renal disease. In this paper the authors describe in detail a simple and beautiful method of testing the efficiency of the kidneys. It is used by the Ministry of Pensions in the assessment of a patient's condition. A general scheme for the examination of renal conditions is given, which should be of great value to both physicians and surgeons.—Dr. Alexander Fleming and Dr. Francis J. Clemenger describe a simple method of recording gas production and oxygen absorption by bacteria in culture.—Dr. McIntosh gives a description of the simple preparation of a litmus solution suitable for bacteriological purposes.

New Inventions.

A NEW HEAD-LAMP.

THE lamp (Fig. 1) is on the well-known Klar principle, but with a reflector of speculum metal, so that it cannot break, and of sufficiently small size to allow of very useful peripheral vision when in place. The eye-holes are very large and placed on the converging lines for near binocular vision. The reflector (Fig. 2) is attached to a rigid head-band by an arm with an adjustable hinge at either end, permitting of movement only in the saggital plane. The lamp can thus be adjusted before washing up, and then brought down into place or pushed away from the face with a mop, no readjustment being needed, and no breach of asepsis being entailed. An automatic switch cuts off the current when the reflector is out of use, thus enabling it to be used off a pocket battery in the ward or clinic without waste. The front part of the head-band is sloped back through 15°, an angle which causes it to lie flat on practically every forehead and permits of the lamp being worn for long periods without discomfort. I have found the lamp useful not only for ear, nose, and throat work, but also for many operations in general surgery where the general illumination available was insufficient.

FIG. 1.

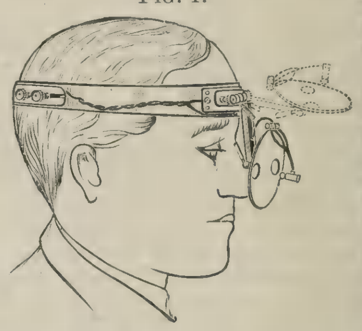
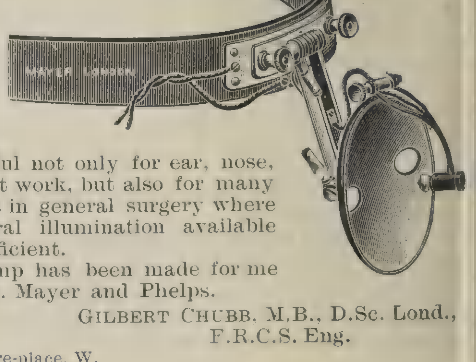


FIG. 2.



The lamp has been made for me by Messrs. Mayer and Phelps.

GILBERT CHUBB, M.B., D.Sc. Lond.,
F.R.C.S. Eng.

Devonshire-place, W.

THE LANCET.

LONDON: SATURDAY, MARCH 13, 1920.

The Future of the Voluntary Hospitals.

AT the present moment changes and developments closely affecting the profession of medicine may be regarded alike as a consequence of the world war, as a sequel to the institution of a Ministry of Health, and as a development of National Insurance. Each factor affects the voluntary hospitals, on which falls a share of the sad burden conferred on us by the broken warrior, at a time when international disorganisation has made poverty in money and scarcity in supplies a world-wide condition. The hospitals, founded by ancient charity for the medical relief of the poorer classes, are inextricably bound up with the training and the progress of our profession, and all that affects medicine must affect simultaneously the position and conduct of the voluntary hospitals. It seems to be assumed widely that the day of the voluntary hospital is over, and this despite official assurance that no despatch of the sort will be expedited by the Ministry. The direction which social evolution may take is another matter. A public willing to coöperate in order to bring about a more extended usefulness of medicine and of hospitals will play a part in such evolution, and laymen will no doubt be ready to be guided by the medical profession in their views as to the value of the voluntary system. For certainly this system is an expression of altruism on the professional side. The public should feel that if, in charitable guise, they bear the cost of institutions whose funds in practically no case bear any relation to their necessary expenditure, they also form the patients the preservation of whose health is aimed at. In the voluntary hospitals the public have good value in return for their expenditure. The charitable few, whose generosity in past times has founded individual hospitals, have their analogue in charitable thousands to-day, and these will not willingly let a system pass away so fraught with benefit for all. And yet the system no longer meets the national case. We remind our readers of the somewhat similar position which marked the evolution of our national system of education in 1870 and 22 years later. The difficulty in the framing and modification of the Education Acts was to secure public control, as a necessary concomitant of public maintenance, without destroying the special, or religious, character of the voluntary schools. The difficulty has been fairly well surmounted by a policy represented in the phrase "supplement and not supplant"; and this is the direction in which a solution of the hospital question may be expected.

For the development of medical and surgical science, and of our knowledge of the causes of disease, work done in the voluntary hospitals has been responsible, but the institutions have had laid upon them too heavy a burden. The education of medical students would be impossible without the hospitals, but thus there is added a load greater than the founders could ever have dreamed of. Coupled with all this comes an increasing recognition of medical science on the part of the general public. The demand for, and general acceptance of, National Insurance were symptoms of this appreciation, which the feats of medicine and surgery in the war have stimulated. So far as the hospitals are concerned, the result has been an increased demand for accommodation within their walls, quite apart from the number of those for whom institutional treatment is admittedly needed as a sequel to naval or military service. Mr. E. W. MORRIS, House-Governor of the London Hospital, in some interesting articles contributed recently to the *Daily Telegraph*, emphasised the fact that the hospitals of London are already overcrowded, and have long waiting lists of poor patients, whose admission has to be postponed till there are beds vacant for them. To these a host of persons in need of treatment can be added, who are not less poor than the manual worker, but are not in the ordinary sense objects of charity; and to these the doors of the voluntary hospitals are closed. Nor can they afford highly skilled surgical or medical assistance in nursing homes, at what, for want of a better phrase, we may call "market prices." This amounts to a plea for paying hospitals of various grades, and the day is gone by when the general practitioner would see any unfair rivalry in such institutions, for he himself would have the care of his patients, advising them what special assistance, if any, should be summoned. At the London Hospital a paying system has now been inaugurated, to run alongside of the gratuitous reception of the entirely needy. The step was taken, with the approval of the governing body, in view of the urgent money situation, but it can only be regarded as a move to meet a special case. The solution of the financial problems of the voluntary hospitals does not lie in any direct payments by the patients, if only because those payments would be required of them at the moment when they would be least able to meet them.

Developments of institutional treatment are likely to be demanded and carried through which will be beyond the means of the voluntary hospitals as now constituted. The question will then arise, when legislation seeks to provide for such progressive changes as the nation may desire, whether the voluntary hospitals are to be absorbed into a new system, or whether they are to retain as far as possible their former position, characteristics, and functions. An equally important question for those who desire to see them enjoying continued existence, with increased vitality and usefulness, will be whether voluntary charity will continue to support hospitals side by side with institutions doing similar work, but created and sustained out of public funds or by means of insurance, or by a combination of the two. We have to contemplate such institutions, and such insurance as we now refer to, as designed to include classes not yet found in our hospitals or subject to existing Insurance Acts, when the matter of the remuneration of the professional staff comes into the area of discussion. Will physicians and surgeons give their services as they now give them, rewarded by the knowledge that they are helping their fellow-men in need, and training their juniors; will they be content with such indirect advantages as are to be derived from their position and their hospital practice? In asking this we are assuming the possible existence of voluntarily supported hospitals contemporaneously with others open to a wider clientèle, founded and governed by the State, and presumably paying their staffs out of public funds. The whole position calls for much thought, and we trust that the Medical Consultative Committee of the Ministry of Health, in its imminent report, will deal with the issues in a practical, and especially in a far-seeing, manner.

The Story of Salvarsan.

Two recent reports (Nos. 41 and 44) of the Medical Research Committee deal with the organic arsenical compounds. No. 41 is divided into two sections, the first being devoted to the ultimate results of the treatment of syphilis with these products, and the second to the toxic reactions which may follow the administration of one of them, Ehrlich's "914." The observations on which this report is based were made at the Royal Naval Hospital Haslar, under the direction of Dr. P. FILDES and Dr. R. J. G. PARNELL, R.N., who have put to good public use the remarkable facilities at their disposal for obtaining valuable data, and for observing the results of treatment. Their memorandum will be read with profit by all those engaged in venereal work for its estimate of the arsenical treatment of syphilis based upon direct clinical observation of results.

From the national point of view No. 44 is of special interest, being the product of the deliberation of a special committee appointed to consider the manufacture, biological testing, and clinical administration of salvarsan and of its substitutes. Before the war the manufacture of salvarsan was in the hands of a single German firm, which was under the obligation to submit batches of the drug for testing under EHRLICH'S direction at the Georg-Speyer Haus, Frankfort. After the outbreak of hostilities a sufficient supply of German salvarsan could no longer be counted upon, and arrangements were made for its production in England. Licences were issued by the Local Government Board to certain manufacturers suspending the patents protecting salvarsan and imposing a condition that every batch should be submitted to a biological test. The Medical Research Committee undertook to arrange for this testing as a war emergency, and it is on the experience gained during this testing of British and French products that much of this report is based. The story here unfolded reads like romance. The whole responsibility of testing these products was entrusted to one man, who laboured in the earlier months unaided, in inadequate premises, and with other work on his hands. There was but little information to go on, and knowledge could only be obtained by experience and careful observation. The supply of animals constituted an additional problem. Mice, which had been used at the Georg-Speyer Haus, were found to be in some ways unsuitable. As the arsenical preparations were to be used clinically as intravenous injections, it was felt that they should be tested biologically by the intravenous rather than by the hypodermic route, and to render this a practical proceeding rabbits were employed. It was then found that rabbits might in some instances show no signs of immediate poisoning, and yet give evidence of remote toxic effects, dying eventually of enteritis and renal necrosis. The proportion of British and French samples failing to pass this biological test grew at times so high as seriously to imperil the supply of material available for the country's need. Great discrimination was needed to steer a course between the perils of allowing toxic products to pass into use and of depriving the country of what it urgently required. That this was done, and done successfully, is due to the Medical Research Committee, and in particular to Dr. H. H. DALE who undertook this work in addition to his other labours. The achievement will be best understood by those who can appreciate the difficulty under which the work was done.

The testing of salvarsan and its substitutes has, however, a present as well as a past interest. The toxicity of these drugs is exceedingly high. They are also relatively costly. The temptation to dilute the toxicity of any sample by adding some inert and useless powder is considerable. Fraudulent substitutes without any arsenic and having no therapeutic value have already appeared in some countries. It is obvious that a strict control must be exercised over these preparations to prevent the advent of dangerous or useless samples. This control must be exercised by some Government Department, such as the Ministry of Health. Batches of salvarsan products will require to be submitted to biological testing, the tests being undertaken in a central Government laboratory or in laboratories provided by the various manufacturing firms, and approved of and inspected by Government. The Medical Research Committee is inclined to advocate the adoption of the second alternative, and to regard the scheme of decentralised testing as the more practicable. The onus of providing adequate arrangements for testing would thus be thrown on the manufacturer, the holder of a licence being required to submit records of careful testing whenever required. In the matter of imported products the same care must be exercised, entry being refused to all foreign preparations that have not undergone similar testing. Much useful knowledge has been gained as the result of the emergency measures adopted during the war, and the task of safeguarding the public from toxic or fraudulent preparations will have been rendered considerably easier by the work that the Medical Research Committee has so efficiently carried out. The preparation of adequate machinery for discharging these duties in the future is a task of no small importance.

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The Remuneration of Panel Practitioners: The Award.

Two months ago the Insurance Acts Committee, acting on behalf of the medical profession, and in accordance with instructions received from the Conference of Local Medical and Panel Committees, accepted arbitration upon the capitation figure which should be paid to medical men working under the National Insurance Act. The circumstances are well known to all our readers, and are, moreover, set out clearly in our columns this week by Dr. H. B. Brackenbury, the Chairman of the Insurance Acts Committee, whose facts seem to us not open to challenge, and whose deductions are made with an evident spirit of fairness.

The arbitrators, Mr. W. F. Gore-Browne, Sir R. Vassar-Smith, and Dr. J. C. Stamp, under their terms of reference, issued on Friday, March 5th, the following award:—

> We, the undersigned, having taken upon us the reference to us by the Ministry of Health and the Insurance Acts Committee of the British Medical Association, namely, "to advise the Government what should be the amount of the capitation fee (per insured person per annum) on the basis of which the Central Practitioners Fund, under Article 19 (i.) of the Medical Benefit Regulations, 1920, should be calculated so as to afford fair remuneration for the time and services required to be given by general practitioners under the conditions set out in those regulations, in connexion with the medical attendance and treatment of insured persons," taking note of the agreement that "the capitation fee is not to include any payment in respect of the supply of drugs and appliances (such payments being met out of the Drug Fund under Article 22), nor any payments to meet those special conditions of practice in rural and semi-rural areas, which are covered by the payments to be made out of the Central Mileage Fund, under Article 19 (ii.),"
>
> And having heard and considered the statements of fact and arguments submitted to us,
>
> Do hereby award, determine and advise that the capitation fee per insured person per annum defined as above should be eleven shillings.

The award is in general accordance with expectation; it forms rather less than a middle term between the demand of the medical profession and the sum which the Government was prepared to find. There will certainly be some disappointment, but, having regard to the fact that the terms are later open to variation, there should certainly be no overt manifestation of reluctance to abide by the pledges which are entered upon in accordance with the findings of the arbitrators. We trust sincerely that the early work of the Ministry of Health will not be prejudiced by any bickering, which would present a damaging picture of the spirit in which the medical profession as a whole is willing to undertake national work. The statement in the House of Commons by the Minister of Health that the award has been received on both sides with the utmost goodwill is reassuring.

To the last paragraph of Dr. Brackenbury's article we draw attention, particularly in view of his insistence upon the temporary nature of the settlement arrived at. Anticipating an early reopening of the remuneration question, as well as an unsympathetic reception of the medical views to be then expressed, he urges that the profession should place itself in a much stronger position with regard to unity of action and a defence fund. This is a sentiment which fully accords with the programme of the Federation of Medical and Allied Societies, which, given the necessary backing, should form a valuable link in negotiations between the State and the medical profession. It seems to us imperative in the best interests of medicine, and therefore of the public, that no idea should get abroad that medical men are working only for their own hand; and it might help the Government substantially to be supplied with the arguments, from a public point of view, why professional demands should be met in a more generous way than Dr. Brackenbury would seem to count upon. If the British Medical Association were to help the Federation to fulfil quickly what it has already made a good start upon, it would be surrendering, as far as we can see, nothing in influence or dignity, while coming into wider yet closer relations with those whom all medicine serves.

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Health Insurance Records.

The Minister of Health and the Scottish Board of Health have appointed an Inter-departmental Committee to consider and advise them as to the form of medical record to be prescribed under the conditions of service for medical practitioners contained in the new Medical Benefit Regulations, having due regard to the clinical as well as administrative and statistical purposes which such records will serve. The Committee, whose personnel is set out elsewhere, will be presided over by Sir Humphry Rolleston, and includes Mr. R. W. Harris, assistant secretary of the Ministry of Health; the Superintendents of Statistics at the General Register and the Edinburgh Register Offices; the Director of Statistics of the Medical Research Committee; the Chairman of the Insurance Acts Committee, and the Director of Medical Services at the Ministry of Pensions. Dr. G. F. McCleary and Mr. A. E. Joll will act as joint secretaries.

Annotations.

"Ne quid nimis."

UNIVERSITY OF LONDON O.T.C. MEMORIAL FUND.

AN appeal is being issued by a strong committee for funds to establish a war memorial for the University of London Officers' Training Corps. Major B. M. Cloutman and Brevet Major A. C. T. White, the honorary secretaries, are the two survivors of the five former members of the contingent who gained the V.C. during the war, the other three being Captain John Fox-Russell, R.A.M.C., Major Frederick Henry Johnson, R.E., and Captain Allastair Malcolm Cluny McReady-Diarmid, Middlesex Regiment. A standing camp for the contingent has been acquired at Great Kimble, Bucks, and the suggestion is to perpetuate the memory of former members killed in the war by the erection of a permanent hall on this site, as well as by a memorial in London. The nature of this memorial is not yet settled, but presumably it will take the form of a tablet in some suitable place, so that most of the money subscribed can be allocated to the proposed hall. The number of past and present officers and cadets of the University of London O.T.C. who served as officers in the war is 4197, and of these 657 are known to have fallen. They served on every front, and assisted in the defence of London, one of them bringing down a Zeppelin near the City and later a Gotha aeroplane. They gained in all 1650 distinctions. It is proposed to dedicate a personal memorial to Lieutenant-Colonel Arthur Egerton, Coldstream Guards, first Adjutant of the University of London O.T.C., who fell in action near Loos, and proposals for other special memorials at the standing camp to individuals or groups will be sympathetically considered. It is hoped to raise £30,000 for the whole scheme. Contributions to the fund should be remitted to the honorary treasurer at 46, Russell-square, London, W.C. 1.

MODIFIED ENTERIC IN INOCULATED PERSONS.

IT is now generally agreed that enteric fever occurring in a patient who has been inoculated against the disease is altogether of a milder order than the same disease in an uninoculated person. This fact was constantly observed by R.A.M.C. officers who had the opportunity of studying cases of enteric among the unprotected civilian population of France and among our protected troops. The disease may be so mild indeed as to lead experienced clinicians astray. The difficulty of diagnosing typhoid and paratyphoid infections, among the very large numbers of cases of pyrexia of doubtful origin, was therefore constantly present and exercised the wits of clinician and bacteriologist alike. In the end bacteriological diagnosis was the final court of appeal. Where either a typhoid or paratyphoid bacillus could be isolated from the blood or from the stools, there was, of course, no hesitation in classing a case as enteric, however mild the symptoms may have been. But the exigencies of military service often prevented the prolonged observation of a patient in the early period of his disease, and bacteriologists were consequently unable in a large number of cases to give a definite opinion as to the nature of the disease. It was in such cases as these that the diagnosis of enteric by fluctuations in the agglutinating power of the serum was most practised. The reliability of the method, which we owe to Professor G. Dreyer and his co-workers, has been, and still is, keenly debated. Those who accept the method without reservation are led by their results to believe that a considerable proportion of cases of P.U.O. were in reality cases of modified enteric; and they are further compelled to conclude that prophylactic inoculation not only reduces the incidence of the disease and moderates its severity, but that it also diminishes the chances of recovering the infecting organism from the blood or fæces or urine. The debate on this important subject is not yet ended, but an informing contribution to the discussion has been made in a Green Book just published by the Medical Research Committee.[1] In this essay Drs. W. W. C. Topley, S. G. Platts, and C. G. Imrie review the whole question in an impartial way. They have investigated in an experimental fashion the basis of Professor Dreyer's method, which they conclude is trustworthy and enables "successive determinations of the agglutination titre of the serum to be carried out with the requisite degree of accuracy." They discard, however, the method of recording the agglutinin in terms of "agglutinin units," a reservation of considerable importance. By means of the Dreyer technique Dr. Topley and his collaborators have studied atypical febrile conditions, and have arrived at the conclusion that some 5 to 7 per cent. of the cases of P.U.O. from the Western front were enteric of one sort or another. In giving this result the authors frankly recognise that its validity depends entirely upon serological evidence, and "must stand or fall by the reliability of this method of diagnosis." They admit fully the importance of the criticisms and conclusions of the American Trench Fever Commission, which subjected the method to a thorough and searching test and finally declared that fluctuations of agglutinin titre are of no diagnostic significance. But upon the balance of evidence they are inclined to believe that their own conclusions are valid.

A CONTRIBUTION TO THE CHEMISTRY OF VITAMINES.

AN interesting paper on "The Preparation of a Stable Vitamine Product and its Value in Nutrition," read before the Division of Biological Chemistry at the Fall meeting of the American Chemical Society, Philadelphia, appears in the February number of the *American Journal of the Medical Sciences.* The authors, H. E. Dubin, Ph.D., and M. J. Lewi, M.D., prepared a vitamine product "V" from corn, autolysed yeast, and orange-juice materials which assured the presence of all three vitamines—antineuritic, antirachitic, and antiscorbutic. The combined materials or extracts were dried in vacuo at 40° C., a temperature which leaves the accessory factors unimpaired. A tentative analysis of the product obtained showed the following chief constituents: Calcium (CaO), 10 per cent.; phosphorus, 15 per cent.; nitrogen, 3·5 per cent.; fat, 2·5 per cent.; iron, 0·3 per cent.; silicates, 5·6 per cent.; moisture, 10 per cent., the remainder being made up of the rest of the phytin molecule —of which, according to these authors, the vitamine preparation is chiefly constituted—which is a double calcium and magnesium salt of inosite pentaphosphoric acid. The results of the experiments with normal and polyneuritic pigeons, normal and scorbutic guinea-pigs, and, more important still, with children presenting evidence of malnutrition, marasmus, and rickets, showed a marked acceleration in the rate of growth, particularly in the case of children. It seems established that all three vitamines were present in the preparation, and the authors attach importance to the calcium and phosphorus in the product, which they regard as having a beneficial action on the general metabolism, more particularly on bone and tooth formation. They assert that until such time as the vitamines shall have been isolated, and their chemical composition determined, the vitamine preparation which they have produced may be trusted to be effective as an accessory food factor. The investigation is being continued with the hope of isolating and determining the chemical composition of the vitamines. The chemist so far has found these entities elusive, but their importance should stimulate the hunt.

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[1] Medical Research Committee: Special Report Series, No. 48. A Report on the Probable Proportion of Enteric Infections among Undiagnosed Febrile Cases Invalided from the Western Front since October, 1916, by Drs. W. W. C. Topley, S. G. Platts, and C. G. Imrie.

SUPRAPUBIC HÆMATOMA OF THE RECTUS MUSCLE.

IN the *Progrès Médical* of Jan. 18th, Dr. F. Cathelin has described an interesting injury which comes under the observation of French army surgeons—suprapubic hæmatoma of the rectus muscle in young horsemen. It is always produced in the same manner, but the diagnosis would be very difficult for a clinician whose attention had not been directed to the injury by a previous case. While director of the Urological Centre for the Fifth Region during the war, Dr. Cathelin had eight cases sent to him in a few months. The following are examples:—

A young cavalryman, while mounting his horse from the left side, felt a slight suprapubic pain which did not prevent him from continuing on duty on that and the following days. The pain reappeared on mounting, but did not continue when in the saddle. A hard, smooth, regular, painless swelling was found in the subumbilical half of the right rectus muscle. The swelling ceased sharply two fingers' breadth below the umbilicus, and at the lower end was lost in the pubic bone. The left rectus showed nothing abnormal. Recovery took place in a fortnight under rest in bed and hot fomentations. In another case a man felt a violent pain in the lower abdomen on mounting. He was able to continue a riding lesson, but suffered much during trotting and jumping. On the following day he was able to mount without pain, but in the evening, on vaulting, he felt a violent pain, which immobilised him. He maintained a stooping posture and could not straighten himself. On examination acute pain was felt on palpation and on the slightest movement at the external border of the left rectus muscle, extending from the pubic bone to five fingers' breadth below the umbilicus. On palpation puffiness and a hard and painful swelling of the size of a small orange was felt beneath the muscle. The swelling disappeared under the same treatment and in the same time as in the previous case.

In all the cases the ætiology was the same. The patients were young soldiers of the classes 16 and 17 in the first months of cavalry training. In jumping or vaulting they felt, on widely separating the legs, a slight pain in the lower abdomen, which sometimes prevented them from continuing the exercises. Usually there was no pain on palpation. The swelling was sometimes circumscribed, at other times diffuse, smooth, regular, and always unilateral. Its position beneath the muscle gave a sensation of depth. It was always at the lower part of the rectus, generally on the left side. In spite of its suprapubic position vesical signs were always absent. The pathogenesis is explained by the fact that the aponeurosis surrounding the recti is absent posteriorly over the lower third where there is only a thin cellular layer, between which and the muscle run the epigastric vessels. The production of the hæmatoma has been attributed to several mechanisms: 1. Repeated impact of the abdominal wall against the pommel of the saddle in jumping on a horse without stirrups, which produces small muscular ruptures, the origin of a more important rupture during horse exercise. 2. Muscular rupture, such as occurs in sprain of the back or rupture of the tendo Achillis. Against this view is the almost complete absence of pain. 3. A tearing away of bone from the pubis at the attachment of the rectus. Again the absence of pain is against this view; so is the absence of ecchymosis. 4. The most probable hypothesis seems to be rupture of branches of the epigastric artery. It is well known how easily these branches are ruptured when the muscular fibres are separated to enlarge the incision for lateral laparotomy.

A NAVAL OFFICER ON CONDITIONS IN MERCHANT SHIPS.

EFFORTS were being made for some time before the war to improve living conditions for the crews of merchant ships. The Board of Trade was interested, its medical officers certainly were, and it was believed that ship-owners were to some extent conscious that their crews, including the stokers who fed the furnaces, wanted, and were entitled to, something better in the way of sanitation, including sleeping and feeding accommodation, than had been given them in the past. If anyone desires to see how the living accommodation for the firemen of a good-sized liner, in use as such in 1914, appeared to the eyes and other senses of an experienced officer in H.M. navy he will find full particulars in the closing chapter of a series of interesting articles in *Blackwood's Magazine* for February, 1920. The writer, Rear Admiral Boyle Somerville, describes the work of the Ninth Cruiser Squadron, with particular reference to a liner converted into a cruiser. What that work was, so far as the war was concerned, can be read in the articles referred to. With regard to the matter of the ship's equipment, as studied by the writer in connexion with the process of conversion, Admiral Somerville found much to disapprove of, but the "first and worst and rudest shock of all" came when he went the rounds of the living quarters allotted to the deck-hands and firemen of the ship's original crew in the routine of the first Sunday morning at sea. The quarters of a man-of-war's crew, as he observes, are not laid out in over-luxurious fashion. What he found in the way of darkness, lack of ventilation and sanitation, filth, and vermin in the forecastle and the depths beneath it in his new command is told with breezy candour and with full particulars of the remedial steps immediately taken, including the washing out and sealing of the part of the ship previously used for sleeping in, and the throwing overboard of the abominations provided for bedding. After that decks, dismantled of the woodwork compartments which once had been cabins, but still equipped with baths, became the crew's living places. The effect of what was done in producing contented and orderly service, as well as the results of training under efficient stokers in the saving of coal, might usefully be considered by ship-owners and legislators interested in our seamen. Admiral Somerville's point, put shortly, is that training and decent treatment for firemen would pay for any immediate outlay involved, and that those who give conditions which only the dregs of the male population will accept only get that class to serve in their ships, to their own loss as well as to their discredit.

DENTAL CHANCRE.

OWING to the rarity nowadays of syphilitic infection arising from the use of unsterilised dental instruments, a case reported by Dr. Herman Goodman,[1] of New York, is of interest. The patient was an American officer, 32 years of age, who was married and had two healthy children. Ten to 14 days after extraction of a tooth by a civilian dentist an ulcer appeared at the site of the extraction. A Wassermann reaction taken at the time proved negative. The ulcer healed under local treatment, but recurred. About six weeks later there was a generalisation of the syphilitic infection, which was shown by inflammation of the jaws and ulceration about the right molars, bilateral swelling of the submaxillary glands, pharyngitis, and a positive Wassermann reaction. There were no lesions on the genitals. After three doses of arsenobenzol the symptoms disappeared and the Wassermann reaction became negative.

THE GENESIS OF THE MAUDSLEY HOSPITAL.

THE institution by the London County Council of a course of lectures and practical instruction at the Maudsley Neurological Hospital, in preparation for the Cambridge Diploma of Psychological Medicine, leads us to recall the initial impetus given to the scheme by Sir Frederick Mott. In the *Archives of Neurology* for 1907, writing of post-graduate teaching in medico-psychology and neuro-pathology, he said :—

> A fruitful field of study in psychiatry would be those early cases of uncertifiable mental affection termed neurasthenia, psychasthenia, obsession, mild impulsive mania, melancholia, hysteria, and hypochondria, which in many instances are really the prodromal stages of a pronounced and permanent mental disorder. The poorer patients suffering with these conditions first come into the hands of the practitioner, the dispensary or infirmary doctor, and the out-patient physician at the general or special hospitals. The better class patients are sent by the practitioner to the neurologist; the generality of the poorer patients, and sometimes the better class patients, are regarded by the medical man who has had no training in psychology as of little medical interest (for such patients do not, as a rule, benefit by drugs), and he finds it a wearisome task to listen to their story, to ascertain their inborn tendencies, and to find out the truth of what has happened to account for their strange conduct indicative of their not feeling, thinking, and acting in accordance with the general usages of their social surroundings, and yet such patient may not be so anti-social as to be certifiable. Such cases are often in the hopeful and curable stage, and these, if studied carefully by trained medico-psychologists, could not fail to yield valuable results in regard to our knowledge of the causation, prevention, and cure of insanity. Moreover, when the cases are followed up systematically they would throw much light on prognosis in similar cases. The majority of cases which are admitted to the asylum have long passed the hopeful stage; still, there are a certain number of early curable cases, and these, I maintain, would sometimes be much better if they had not been certified or sent to associate with chronic lunatics. Fortunate would be the community in which there was a fully equipped and well-organised psychiatrical clinic, under the control of a university, and dedicated to the solution of such problems.
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> The scheme of the London County Council for Receiving Houses would probably include the establishment of an acute hospital for the investigation and treatment of curable mental cases, to which a clinic might with advantage be attached. Hereby post-graduate teaching would be encouraged, and the better knowledge and early treatment of insanity would certainly prove of great economic advantage. If suitable post-graduate training in medico-psychology and neuro-pathology were established, doubtless the universities and licensing bodies might be induced to establish a diploma, very much on the lines of the Diploma of Public Health, which has largely contributed to raise the science of public health to the high position it now holds, thus conferring an inestimable benefit on the nation.

The offer by Dr. Henry Maudsley of £30,000 to further precisely these aims was made to the Council on Feb. 18th, 1908, and there is no reason to doubt that Sir Frederick Mott's statement largely induced Dr. Maudsley to make his munificent offer.

POST-ANÆSTHETIC TOXÆMIA.

A RECENT inquest has directed attention once again to the obscure condition known as post-anæsthetic toxæmia, or, as it has been less precisely termed, "delayed chloroform poisoning." Chloroform is, we know, not the only, although it is the most usual, anæsthetic associated with these cases of persistent vomiting, restlessness, delirium, coma, and death. It was in the columns of THE LANCET in 1894 that the late Dr. Leonard Guthrie first directed attention in this country to a condition which had already been described on one or two occasions on the continent. Dr. Guthrie's description remains the best clinical picture of the symptoms exhibited by patients who suffer from post-anæsthetic toxæmia, nor has much knowledge been added to that which he gave us upon the post-mortem appearances in these cases. The association of acidosis with this condition had, however, not yet been recognised, and treatment, therefore, had not yet been designed, as it now has been, based upon the assumption that the symptoms are due to the faulty products of metabolism present in an organism that is suffering from acetonæmia or the state immediately precedent to this. Whether this supposition is correct or not, the use of glucose prior to operation, and bicarbonate if symptoms develop after, seems to have good clinical justification. The feature about this condition, which makes any explanation of it dependent upon the anæsthetic so difficult of comprehension, is the fact that in many instances the anæsthetic has been of extremely short duration, and in some the drug employed has been one of far less toxic power than chloroform. In the case recently recorded the operation lasted only a quarter of an hour, and was one that involved no hæmorrhage at all, being a manipulative procedure. Yet the post-mortem appearances were well marked and included the characteristic fatty infiltration of the liver described by Dr. Guthrie. It was the presence of this condition in patients who had succumbed within a day or two of operation that led Dr. Guthrie to suppose that a pre-existing faulty state of the liver must be present. The histological changes were, he thought, too extensive and advanced to have been produced within the short time intervening between anæsthesia and death unless they had already begun beforehand. The importance of discovering in the urine of patients before operation the presence of alkaloidal bodies is that these indicate faulty liver metabolism. Thus more recent investigations link up with Dr. Guthrie's original hypothesis of pre-existing liver disturbance in patients who become the subjects of post-anæsthetic toxæmia.

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[1] New York Medical Journal, Jan. 31st, 1920.

HEALTH OF THE U.S. ARMY IN 1918.

In a recent number of the *Military Surgeon* Major Soper deals with the sickness occurring in the U.S. army during 1918, based upon the weekly reports from stations to the central office. The figures are obviously not final, but their small inaccuracies are far more than compensated by the promptitude with which the broad lines of disease prevalence are made publicly available. During 1918 the army increased from 217,272 to 1,538,293 men, and as the recruits joined the cases of infectious diseases mounted up. All comparisons with previous years were upset by the influenza epidemic, which seems to have commenced in March in the south-east, to have progressed slightly during the summer, but to have taken on a virulent infectiousness only in autumn. Pneumonia caused most deaths (24,538), influenza is only discredited with 1133, but the most deadly disease was cerebrospinal fever (883), 42 per cent. More days were lost from measles than from any other disease; next come gonorrhœa and mumps. Troop movements carried infections, and the respiratory infections spread more widely and were more fatal in barracks than in camps. The camps had much higher death-rates than the large cities of the United States. Recruits are susceptible to disease, especially when they first arrive and have not learned how to take care of themselves; but to the end of their training, when they are doing more and more work, they are very likely to get worn out. The Americans in France suffered fewer attacks of illness than those at home, and were less apt to die, but in France bronchitis, influenza, mumps, scarlet fever, and dysentery were more prevalent and fatal than in the United States. Influenza in the United States attacked 57·72 per 1000, and 0·01 died, but in France the figures were 101·16 and 0·04. Colonel Lynch and Lieutenant-Colonel J. G. Cumming insist that mess gear of troops shall be boiled after each meal to prevent the conveyance of infection from mouth to mouth by cups and forks. Of 160,000 troops returning from France in 68 ships, 97,000 had their mess gear boiled, 62,000 only their mess gear washed in warm water. These last had more respiratory infectious disease, and, in particular, had three times as many cases of influenza and of pneumonia. (If spoon boiling is the secret of avoiding infection, why had the camps mentioned above less respiratory disease than the barracks where dish washing was probably better done?) Account is given of 500 cases of scarlet fever which occurred in a camp in Georgia. Here the important observations seem to be that in many cases the rash is transient and inconspicuous, perhaps even it may be absent, the disease slight, and attention only called to the condition when desquamation begins. On the second day there develops a polymorphonuclear hyperleucocytosis and a general enlargement of the glands. So that if a suspicious case has on the second day a bilateral enlargement of the inguinal glands it should be diagnosed as scarlet fever. On the third day a characteristic eosinophilia (2 to 5 per cent.) begins to develop and the more marked as the case is more serious. In respect of diphtheria in the American Expeditionary Force, the most effective measure of prevention was the immunising of susceptible men, but the disease gave endless work to the central and divisional laboratories.

GAS CYSTS OF THE INTESTINE.

ACCORDING to Dr. M. D. Stoyanovitch,[1] who devotes his thesis to the subject, this rare condition was first described by Duvernoy in 1754, and since then only about 50 cases have been recorded. The cysts, which vary in size from that of a grape-seed to a grain of wheat, are found massed together like a bunch of grapes. Their favourite situation is the small intestine, but they have been found on the parietal and diaphragmatic peritoneum, the meso-colon, omentum, and intestinal adhesions. Histologically they are situated in the submucous and subserous coats, and exceptionally in the muscular wall of the intestine. They are grouped round the lymphatics, and are remarkable for their vascularity. The condition, which has been found between the ages of 13 and 67, may occur by itself, but, as a rule, is associated with another disease, such as stenosis of the pylorus due to gastric ulcer, tuberculous peritonitis, or appendicitis. The symptoms are vague, and the cysts are often found unexpectedly at an operation undertaken to relieve the concomitant affection. The physical signs are distension of the abdomen or resistance in the epigastric region, with gastric splashing or a tympanitic note. Valuable information is obtained by radioscopy, which shows the presence of clear zones. The complications which may occur are pyloric or intestinal obstruction. Various theories have been advanced to explain the formation of the cysts. The mechanical theory that they are due to the passage of the intestinal gas into the subserous tissue is contradicted by the nature of the gas, which resembles that of atmospheric air, and by the localisation of the cysts in other situations than the intestine. The theory that they are tumours formed at the expense of the lymphatics fails to explain the presence of gas. The microbial theory, which appears to be the most probable, is supported by Dupraz, who isolated a liquefying coccus which on injection into a bitch reproduced the cysts in the vagina. As regards treatment, if the cysts are merely discovered in the course of an operation for some other abdominal affection they need not be removed. If they give rise to pyloric obstruction, gastro-entero-anastomosis will be required. In the case of intestinal compression, or obstruction of the lumen by the cysts, entero-anastomosis or resection of the affected loop should be performed.

MATERNAL AND CHILD WELFARE UNDER THE LATE LOCAL GOVERNMENT BOARD.

Section 12 of the Medical Supplement to the 48th (and last) annual report of the Local Government Board is from the pen of Dr. S. W. Wheaton, and deals with maternal and child welfare during 1918–19. Although of great interest as a record, it reads like ancient history in view of the rapid progress since achieved in the face of difficulties.

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[1] Thèses de Paris, 1918-19, No. 230.

The supplement states that on the cessation of war conditions it was hoped that a large army of workers would be set free to resume their efforts for the reduction of maternal and child mortality; but, unfortunately, the prevalence of influenza interfered with this work. The health visitors, nurses, and other workers who were not retained by the needs of the navy and army were to a large extent employed in the visiting and nursing of sufferers from influenza, with the result that the maternity and infant welfare centres over large areas had to be closed for a time, while maternity homes and other institutions were gravely affected by the incidence of the epidemic on the staffs and inmates. At the same time, the existence of a trained welfare staff provided local authorities with a reliable force, which must have been of the first importance in reducing mortality from influenza. The further use of this staff in case of epidemics of measles, whooping-cough, or diarrhœa and enteritis is an obvious corollary of its success in influenza. The absence of rise of infant mortality in the year 1918, in spite of the adverse conditions of war and influenza, while a matter for congratulation, is attributed by Dr. Wheaton to the presence of climatic conditions favourable to infant life, the mortality being low in regard to the infectious diseases especially dangerous to infant life. The year was a mild and wet one, the winter months being unusually warm and the summer months correspondingly cool; rainfall was heavy, 4½ in. above the average, and unusually plentiful in the months of highest temperature. Various philanthropic agencies and welfare organisations have claimed the share in the reduction of infantile mortality in 1918 which the report ascribes to the gentle influence of the elements, and we can only trust that their continued activity may show favourable figures under more rigorous conditions. The opportunity is there, for, according to the directory,[1] which has just reached us, there are now 1718 maternity and child welfare centres in England and Wales, of which 331 are conducted by county councils, 708 by local sanitary authorities, and 679 by voluntary societies. In London nearly 80 per cent. of the centres are still under voluntary direction.

SLEEPING SICKNESSES.

IN 1734 John Atkins described, under the term "sleeping distemper," a disease which he found to be common among the natives of the "coast of Guiney," and, although it was not until 1903 that the work of Castellani, Bruce, and others linked up the disease with a particular stinging fly and a characteristic blood parasite, the term "sleeping sickness" has been in general use for nigh on two centuries to denote this form of negro lethargy. Since 1903 "sleeping sickness" has become synonymous in medical literature with trypanosomiasis, and Castellani and Chalmers head the relevant chapter, in the recent edition of their Manual of Tropical Medicine "sleeping sicknesses." A similar nomenclature is in use the world over; we need only mention (Fr.) maladie du sommeil, (Ital.) malattia del sonno, (Ger.) Schlafkrankheit, (Port.) doença de sômno. It would, therefore, be very inconvenient and lead to needless confusion if the same term is used for quite another malady, as there is a tendency to do in the daily press at the moment. The little epidemic of encephalitis occurring in England during the spring of 1918 was unfortunately labelled "botulism" for a while and a gamut of other terms, such as toxic ophthalmoplegia and Heine-Medin disease, was employed until at the combined sections of the Royal Society of Medicine in November, 1918, it was agreed to follow von Economo in the use of the word "encephalitis lethargica." It was at this discussion that Professor A. J. Hall suggested that "sleeping sickness" would not be an inappropriate name for the epidemic, and the lay press has taken his view and acted upon it. It remains for those who are concerned for an informed and accurate public opinion on health matters to devise some popular term for encephalitis lethargica less cumbrous than "lethargic encephalitis" and free from the objection to "sleeping sickness." The disease is too new to appear at all in the official Nomenclature of Diseases (5th edition, 1918), which gives no help in the matter. It might be well to revive "nona," which was the term used to describe a similar outbreak of febrile illness with somnolence in Italy, Bavaria, and Russia, in the year 1890. The word has the merit of never having been used to describe anything else and of not committing the user to any theory of causation, the actual agent of the disease being still as uncertain as the derivation of the word.

THE SALARIES OF ASSISTANT MEDICAL OFFICERS.

THE recommendations made at different times by the British Medical Association with regard to the salaries of medical men employed by Health Authorities have contained, with their excellent intentions, more than one anomaly. This has embarrassed alike Authorities in offering conditions of remuneration, candidates in applying for vacancies, and medical journals in accepting advertisements. In respect to the last, we have decided not to accept advertisements in these columns for the future where the pay offered for assistant medical officers is less than £500 per annum or its equivalent.

Sir George Makins has succeeded the late Sir William Osler as President of the Fellowship of Medicine.

"IN 1917 for every 10,000 births 48 mothers died" is the form in which the statement should have been put in our leading article of Feb. 28th entitled "Safety and Comfort in Child-Bed," as several correspondents write to point out. We regret the obvious slip.

THE fifth congress of the Société Internationale de Chirurgie, of which the general secretary is Mr. L. Mayer, rue de la loi 72, Bruxelles, will be held in Paris from July 19th to 23rd, to be followed by a week's tour of the French and Belgian battlefields. Members are asked to inform the secretary as soon as possible whether they intend to be present. A detailed programme of the congress, from which representatives of Central Europe are to be excluded, will be issued shortly. A provisional list of subjects includes surgery of the cardiovascular system, destructive radiology, surgical hæmatology, fractures of the femur, and the prophylactic and curative treatment of tetanus.

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[1] Maternity and Child Welfare Centres in England and Wales, Jan. 1st, 1920. M. & C. W. 9. H.M. Stationery Office. Price 1s.

SOME THOUGHTS ON THE ARBITRATION.

BY H. B. BRACKENBURY, M.R.C.S.,
CHAIRMAN OF THE INSURANCE ACTS COMMITTEE.

WHEN the Insurance Acts Committee, on behalf of the profession and in pursuance of the instructions of the Conference of Local Medical and Panel Committees, suggested arbitration with regard to the capitation fee for insurance practitioners, an undertaking was of course given on both sides that the award of the arbitrators would be loyally accepted. The Government is now pledged to use every effort to get the House of Commons to pass Estimates which will provide the money required; the Committee is pledged not to promote any organised effort to refuse service; and insurance practitioners are pledged to do their work honestly under the conditions of the award. These pledges are, however, not unlimited as to duration; it is understood that after the year 1920 a notice of not less than three months may be given to vary the terms and conditions of service, to alter the basis of remuneration, or to repudiate service altogether by organised effort.

Moreover, a loyal adherence to the terms of the award on this understanding does not mean that the award is accepted as being either just or satisfactory. To those who know the course of events when the Government was considering its reply to the demand of the profession for a capitation fee of 13*s.* 6*d.*, and the pressure from various quarters which was then being brought to bear on the Ministry of Health to resist any payment of more than 9*s.* or 10*s.* as an extreme limit, the extraction of the offer of 11*s.* from the Government appears something of an achievement. To have accepted this offer, however, at that stage might reasonably have been held to be an admission of its fairness and adequacy. To submit to the same basis of remuneration now at the hands of the arbitrators involves no such admission; it leaves the profession free to maintain its opinion that under present conditions no capitation fee of less than 13*s.* 6*d.*—or from that sum up to about 15*s.*—is fair or adequate for the kind of service which it had in contemplation, and free to take at the proper time any legitimate action that it thinks fit to carry that opinion into practical effect. Personally I am prepared to maintain this standpoint as strongly as ever.

A Missed Opportunity.

To many of us the main disappointment in the matter is that the Government has missed a magnificent opportunity—one which is not likely to recur, at any rate in so favourable a form. At the present stage of national health developments the fundamental necessity has appeared to us to be the definition, the establishment, the encouragement of a "general practitioner service" (not with reference to the Insurance Acts only) of the best type, and with the widest outlook as regards its responsibilities towards both the individual and the community. In the case which the Insurance Acts Committee submitted to the arbitrators the outline of such a service is made quite clear, and the provision of such a service is offered. In the observations made on behalf of the Government—both printed and verbal—presented to the arbitrators, though some pen-service and lip-service is paid to the idea, there is a repudiation of this as a practical thing, and a belittlement of what is at present required or immediately contemplated. It has been understood by those representing the profession throughout all these discussions that the main object of the revision was to improve the present service and to provide one of a comprehensive kind which would expand and fit in with additional medical and accessory services. Yet we find the Government saying that "the number of doctors willing to undertake service on the terms offered was ample to provide a sufficient service in every part of the country, and that service has remained adequate, in respect of numbers, throughout." It is notorious that there are areas in which the inadequate number of doctors is the chief cause of some serious deficiencies in the kind of service rendered, yet the Government is satisfied with this. Again it is said "the number of doctors necessary is so large that it would be impossible to confine choice to the best," and "a relatively high rate of remuneration will not alter the professional capacity." Obviously, however, the capacity *of the service* is materially altered according to the number of individuals of higher or lower professional capacity who are attracted to it or retained in it, yet the Government appeals for an award of such remuneration only as will ignore this. Again, the Government states that the profession's estimate is based on "an ideal standard of service," that a "high ideal type" is "visionary," that it cannot afford to pay for "potentialities of service that are not likely to become realities within the immediate future," that "considerations advanced as regards public health and research are not relevant," that "no obligation arises under the regulations" with regard to some professional work and responsibilities and, "there being no obligation," there can arise no question of remuneration in respect thereof. All this was not to be expected of the Ministry of Health or even of an intelligent Treasury; and it is profoundly disappointing to discover that at a time when a new era of health administration is supposed to be beginning, and when within the profession there is a spirit of eagerness to offer every service that can properly be asked from them, the Government should base its case on a repudiation of the conception put forward on the part of the profession, and should ask for an award on the assumption that these services are not required, or should not be encouraged, or would not be forthcoming. We must accept the lower level of service as what it is now proposed to pay for; we shall no doubt give good and honest value on that level; but once more it is proved that the profession is willing to give practical effect to ideals far in advance of those held by politicians and administrators—even those who are specifically charged with the care of the public health.

On such a level as that indicated it is possible to hold that a capitation fee of 11*s.* affords a fair basis for a minimum remuneration. The Insurance Acts Committee maintains that even on this level it is not enough. The reference to the arbitrators was so framed that they could discharge it by the mere mention of a figure as their award. This is what they have done, and it is therefore impossible to be sure how this figure was arrived at. To those of us, however, who through nearly eight hours were trying to follow the minds of the arbitrators, it seems not improbable that the final stage of the conclusion was something like this: "We will assume that 2*s.* 6*d.* out of any capitation fee is required for expenses. We will assume that a general practitioner can properly attend to 3000 persons (not necessarily insured persons) in a 2400 hour-year. A net fee of 8*s.* 6*d.* will therefore produce an income at the rate of £1275 net. This is approximately what both sides have said is not unreasonable for a general practitioner as such, working his ordinary full time." This is a supposition, but, in fact, the result may correctly be stated in that way.

What the Negotiators have Accomplished.

Those who have conducted the negotiations on behalf of the profession have therefore accomplished this—that, on the new basis of remuneration, a practitioner who claims that he is able properly to attend to 3000 persons in all will be paid in respect of those who are insured persons at the rate of £1275 a year net, while he will be at liberty to cultivate any professional work of a more special character and to charge fees therefor at a higher rate, or to attend, if he can, a larger number of patients by working longer hours than those regarded as the normal. This is a very definite improvement on the existing state of affairs; to some members of the profession, and doubtless to many outside it, such remuneration will not appear unfair or inadequate for the kind of service postulated. If the profession determine—as I think it should—that this remuneration is still inadequate, it ought to show either: (*a*) that £1275 per annum is less than the proper value of a good general practitioner, or (*b*) that a higher sum than 2*s.* 6*d.* per person can properly be allocated to professional expenses, or (*c*) that the circumstances of the case or the capacity of a general practitioner do not permit of as many as 3000 individuals, *on the average*, being properly cared for, or (*d*) that the conception of a "general practitioner service" ought to be so enlarged as to necessitate a smaller number of persons being under the care of each practitioner without reduction of total income. Personally, I am prepared to maintain that every one of these propositions is true, and I fancy that nearly all practitioners will agree with this, with these exceptions—that some members of the profession who are not general practitioners may dispute the first, and that many general practitioners are still apt to deceive themselves about the third. We still need some clear thinking on this point, and I propose to conduct an inquiry as to the number of persons for whose health the State may properly require a general practitioner of ordinary competence and skill to be responsible, and I hope to put the result of such inquiry before the profession for discussion. In any case, it is clear that, in order to secure a further revision of remuneration in the early future, it will be necessary on all the above points to obtain a large amount of statistical information from practitioners. The absence of this was our chief weakness before the arbitrators, and this lack was not the fault of the Insurance Acts Committee or its officers, who have appealed over and over again to the profession to produce such statistics. May we appeal once more, now that the need is demonstrated, for the immediate and careful keeping of the records and figures needed?

Support of the Profession Required.

Experience teaches one thing more. If we are at the earliest possible time once more to raise the question, and to show once more, as we think, the complete reasonableness of our demands, should these demands once more be rejected by a short-sighted administration, the profession must be in a much stronger position with regard to unity of action and with regard to a Defence Fund than is now the case if action is to be effective. The present result is in many respects good; we had a right to expect it to be better. The machinery for negotiation has not proved to be at fault. The personnel is, at any rate, representative and very hard-working. But we shall never arrive at the full results we want to accomplish without the entire support, both moral and financial, of the whole profession.

VENEREAL RESEARCH IN U.S.A.:

WORK OF THE SOCIAL HYGIENE BOARD.

In a very exhaustive paper presented to the American Association for the Advancement of Science at St. Louis (Mo.) on Jan. 2nd Dr. William F. Snow and Dr. Thomas A. Storey deal broadly with the subject of Experimental Medicine and Venereal Diseases. The account is specially noteworthy for the epitome which is given of the scientific investigations now being carried on in America with the assistance of the United States Interdepartmental Social Hygiene Board. The summary is brought up to Jan. 1st, 1920, and is as follows:—

Cornell.—Dr. John C. Torrey is making a serological study of the gonococcus group in the Laboratory of Hygiene of the Cornell Medical School. This research is an investigation into the relationship of many strains of gonococcus from various sources to determine whether the group is homogeneous or heterogeneous. If the former is the case the research may establish a few groups of fixed types which will embrace the great majority of strains encountered in pathological conditions, as has been done for the pneumococcus and the meningococcus groups. Such a group would go a long way to establish the complement-fixation test for gonococcic infection on a more rational and satisfactory basis. If this research succeeds in establishing a standard antigen, we may not only expect that the complement-fixation mode of diagnosis will give more trustworthy results, but we shall have the basis for the preparation of a standard stock vaccine.

Harvard.—In the Pharmacological Laboratory at Harvard University investigation is being made by Dr. Reed Hunt relative to the toxicity of arsphenamine, neoarsphenamine, and analogous products.

Jefferson.—A search for a more rapid and specific method of demonstrating the *Treponema pallidum*, and for a simplification of the clinical diagnosis and treatment of syphilis, was carried out last summer by Dr. Randall C. Rosenberger and his assistants in the Laboratory of Hygiene and Bacteriology in the McFadden Laboratory of Research at the Jefferson Medical College. Results of these investigations should appear shortly.

Johns Hopkins.—Four groups of researches are being carried out in the Clinical, Pathological, Bacteriological, and Animal Experimental Laboratory of the Brady Urological Institute, Johns Hopkins University, under the direction of Dr. Hugh Young. With Dr. Young, Dr. E. C. White is working on the development of new synthetic drugs for the treatment of gonorrhœa. The drugs in present use in the treatment of acute gonorrhœa are, in the main, ineffective. There is great need of a more successful antiseptic. Clinical application of certain new drugs have given better results, and a promising new field for experimentation has been opened. This investigation is for the purpose of synthesising drugs which will possess qualities superior to those of the drugs in present use, and to test their comparative antiseptic values experimentally and clinically. Under Dr. D. M. Davis, working with Dr. Young, a research is being conducted for the manufacture and investigation of a series of new organic compounds for the treatment of syphilis. Salvarsan is now considered to have failed in producing radical cures of syphilis, and mercury is again being used to complete "cures." But great difficulties still exist in using mercury owing to the frequency of toxic results, especially on the kidneys. Some of the recent work in the Brady Urological Laboratory points to the possibility of employing new mercurial compounds which will be tolerated in larger quantities than the old. Dr. E. O. Swartz, in this same laboratory, is concerned with the manufacture and investigation of a series of penetrating organic dyes for the treatment of chancroids. The treatment of chancroids depends largely upon an attack against the infection in its localised area in the tissues, in which the specific bacilli of Ducrey are deeply buried. The drugs used at present are ineffective because of their lack of penetrability. By the use of organic dyes, to which antiseptic groups have been chemically bound, Dr. Young and Dr. Swartz are securing non-irritating and non-toxic drugs of deeper penetration and of much greater sterilising value than others now in use, thus effecting much more rapid cures. Finally, in this same laboratory, working with Dr. Young, Dr. William Jack is developing simpler technique and more effective and less expensive drugs for the treatment of venereal diseases. The venereal prophylaxis in present use depends upon drugs and apparatus available only in especially equipped stations and tedious in administration. The purpose of this investigation is to procure a preventive more easily applicable and less expensive. The relatively little progress in the perfection of venereal prophylaxis made since the discoveries of Metchnikoff and Roux, 1905, especially justifies an investigation concerned with the production of simpler and more effective methods.

Massachusetts.—An appropriation has been made to the Massachusetts State Psychiatric Institute for two investigations that are being carried out under the direction of Dr. E. B. Southard. The first of these researches is concerned with the changes effected in the central nervous system by the treatment of cases of neuro-syphilis. This investigation involves an elaborate and final study, by present methods, of the tissues, especially the nervous system, of subjects who have been treated for neuro-syphilis systematically and intensively. The Massachusetts State Psychiatric Institute possesses in its own laboratory about a hundred brains and spinal cords of subjects of neuro-syphilis who have been intensively treated by various methods, intravenously by salvarsan, arsphenamine, mercury, and iodides, by spinal injections of various drugs, by intracranial and intraventricular injections, and by combination of these methods. This clinic is, perhaps, the most elaborate of the neuro-syphilitic clinics to be found anywhere in the world at the present time; the amount of autopsy material therein is unique and its quality very special on account of uniform methods of observation of material, and especially on account of the availability of all the spinal cords as well as the brains and other tissues of the cases. This material is supported by elaborate clinical histories and records which have been collected in a readily available way. The cases have been systematically and intensively treated. In addition to the hundred nervous systems of these systematically treated cases, there are several hundred other nervous systems, equally well preserved and associated with clinical records, in untreated and partially treated cases, both of the asylum group and of the psychopathic hospital group. In addition to this autopsy material, there is a large amount of cerebro-spinal fluid material derived from the systematic neuro-syphilis treatment investigation carried on under the Commission on Mental Diseases since 1914. The second investigation under Dr. Southard's direction is a research on the family of the syphilitic (Social and Economic Effects of Syphilis in Special Relation to the Family). The clinical material available in the Massachusetts State Psychiatric Institute is unique and permits the establishment of a model plan for reaching "syphilis of the innocent" from a hitherto socially concealed source. The established ward and out-patient services available to the Psychiatric Institute yield a large number of neuro-syphilitics (paretics, tabetics, and atypical forms) yearly. In this research Dr. Southard is dealing mainly with the handling of the syphilitic family for the prevention of further infection, and for the treatment of those already infected to prevent further syphilis. The social service problems involved are of extreme difficulty, and the technique is somewhat intricate, requiring rather expert scientific social workers. The information, resulting from this investigation will indicate the size of the problem, its cost to the community, and the best methods of handling the situation. The information so secured could be put into a form available to all social agencies, and particularly to those working in child-welfare agencies and hospitals. In the John McCormick Institute for Infectious Diseases Dr. R. D. Herrold, under the direction of Prof. L. Hektoen, is making an investigation for the establishment of a better and more definite standard of cure in the gonorrhœal infection of the male. These investigators are attempting to improve the so-called provocative test, as well as the methods now in use for the cultivation of the gonococcus, and to correlate the results of fixation and other serologic tests.

Michigan.—At the University of Michigan, Dr. A. S. Warthin is engaged in a three-year programme to perfect the method and shorten the time required for the staining of spirochætes in tissues. The success of Dr. Warthin's research will provide an accurate diagnosis of latent syphilis now seldom recognised. These researches are being carried out in the Pathological Laboratory of the University of Michigan. With Dr. Warthin is associated a staff of nine investigators and assistants engaged in this research.

Minnesota.—Three researches are being carried out in the University of Minnesota. One of these investigations, under Dr. W. P. Larson and Dr. J. F. McClendon, is being undertaken in the Laboratory of Bacteriology and Immunology and is concerned with a study of the permeability of bacterial membranes, particularly of the organisms of venereal diseases. The second investigation in the Laboratory of Experimental Medicine under Dr. L. G. Roundtree and Dr. Charles E. Nixon, is concerned with the chemical and physical properties of the cerebro-spinal fluid in the luetic and non-luetic. The third research, under Dr. A. D. Hirschfelder and Dr. H. G. Irvine in the Laboratory of Pharmacology, and in the Clinics of Dermatology and Syphilis, is concerned with an investigation of phenol-alcohol derivatives in relation to their antisepsis and the chemotherapy of the gonococcus and spirochæte. There is a reason to believe that the phenol group may combine a definite antiseptic power with low toxicity, and that higher derivatives may be synthesised in which these characteristics will be greatly enhanced.

Nebraska.—At the University of Nebraska College of Medicine, Dr. Edwin G. Davis and his associates are attempting to develop a new internal urinary antiseptic, and are investigating the value of certain aniline dyes in the treatment of gonorrhœa. These researches at Nebraska are very like those that are being carried out in the Brady Urological Laboratory at the Johns Hopkins Medical School. In the previous studies carried out by Dr. Davis it has been possible to establish a definite relationship between the chemical structure and renal excretion, and to predict with reasonable accuracy which drugs would be likely to be excreted. It has further been possible so to modify these compounds chemically as to produce an antiseptic compound excreted by the kidney—an internal and urinary antiseptic which was experimentally successful. Dr. Davis is investigating these compounds with a view to determining their power of penetration through the urethral mucosa while determining other antiseptic properties both in vitro and in the urinary tract.

Stanford.—Dr. R. L. Rigdon and Dr. A. S. Spalding, in the Gynæcological and Genito-urinary Laboratory of Leland Stanford University Medical School, are searching for a more effective treatment in acute and chronic gonorrhœa. They are devising ways of supervising their patients, investigating systematically new methods of treatment and checking efficiency by bacteriological examinations. In the neurological laboratory Dr. H. G. Hehrtens and Dr. Thomas Addis are conducting a research on the permeability of the meninges to antisyphilitic drugs and are attempting to find methods of treatment that will increase this permeability. Their plans contemplate an induced permeability through the intraspinous injection of autoserum. In the Dermatological Laboratory of the Stanford University Medical School, Dr. H. Alderson is searching for more effective methods of treating syphilis. He is checking up his methods with frequent repetitions of the Wassermann test and is investigating the "provocative Wassermann." Dr. R. A. Kensella is directing an investigation covering the bacteriology of the gonococcus—its growth peculiarities, its classification, its immunising properties, and its mode of infecting experimental animals. The programme of this research includes a study of the agents, biological or chemical, which neutralise the activities of the gonococcus or relieve its established effects. It is proposed to devote two or three years to the whole programme as outlined. This research under Dr. Kensella is being carried out in the Laboratory of Experimental Medicine at the St. Louis University School of Medicine.

Albany.—Two researches are being carried on in the Albany Medical College of Union University. One, under Dr. T. Ordway in the Departments of Physiology and Chemistry and the Laboratory of Physiological Chemistry, is concerned with the nature of the Wassermann reaction. Dr. Ordway writes that from the scientific standpoint there has been a marked change in our opinions concerning the Wassermann reaction. It was at first supposed that anti-bodies were present in the blood which united with the specific antigen. It was later found that organs from non-syphilitic persons and certain lipoid substances possessed antigenic properties; indeed, that such substances were more certain in their action than antigens made from pure cultures of the specific infectious agent, the *Treponema pallidum*, when obtained in vitro. It is not clear whether the Wassermann reaction is a specific, so-called immunity reaction, or whether it is a delicate biological indication which represents measurable chemical changes in the body fluids as a result of syphilitic infection. The second of the researches at the Albany Medical College is under the direction of Dr. George S. Graham, who, with his associates in the Department of Pathology and Anatomical Laboratory and the X-ray Research Laboratory of the General Electric Company of Schenectady, is attempting to produce generalised infection in lower animals with the *Treponema pallidum* or the gonococcus. If the attempt is successful, these investigators propose to take up a pathological study of the lesions produced.

Washington.—Two researches are being carried out at the Washington University School of Medicine—one under Dr. M. F. Engman, Department of Medicine, Division of Dermatology and Biological Laboratories; the other under Dr. J. C. Jeans, Department of Pædiatrics. Dr. Engman, with his associates, is working to determine the status, if possible, of the latent syphilitic as a means of conjugal infection. He is attempting to obtain the exact clinical status of each individual patient with latent syphilis and to make a biological investigation of each of those patients to determine if the live *Spirochæta pallida* exist in the blood stream in the lymphatic glands of women with latent syphilis and in the semen of men with latent syphilis. Dr. James and his associates are making histologic examinations of a large number of placentæ for evidence of syphilitic involvement, comparing these findings, wherever possible, with the Wassermann reaction of the mother's serum and with a later clinical and serological examination of the infant. They hope to establish on a more accurate basis the value of placental examination in determining the presence of syphilis in the infant. They are collecting also tests from necropsy material of all married males 50 years of age or less. This material will be examined for spirochætes in those instances in which family studies are more or less complete.

Pennsylvania.—Dr. Bertha M. Maine and Dr. Rose Hirshler, of the Woman's Medical College of Pennsylvania, are making a serological study of syphilis in pregnant women and new-born children, with especial reference to the efficacy of the accepted methods of syphilitic treatment. They are studying the prevalence of syphilis among mothers and the new-born; investigating the subject of non-specific complement fixation during pregnancy; making a comparative study of serological and histological examinations of the placenta for syphilis, stating the comparative value of the accepted methods of specific treatment before and after delivery; searching for additional data on the time of the first appearance of the syphilitic reagin in the blood of the new-born; and seeking to determine if therapeutic benefit can be derived for the infant from the mother's milk.

Wisconsin.—An appropriation has been made to the University of Wisconsin enabling Dr. A. S. Loevenhart, Director of the Department of Pharmacology and Toxicology, to search for various compounds of arsenic and mercury which might be synthesised and be soluble in lipoids, and therefore show a predilection for the central nervous system. The object is to discover more efficacious drugs in syphilis of the central nervous system. Dr. Loevenhart and his collaborators at the University of Wisconsin are working in coöperation with Dr. W. Lee Lewis, professor of chemistry, Northwestern University, and to Dr. Roger Adams, professor of organic chemistry, University of Illinois. Dr. Lewis and Dr. Adams are engaged in research for new synthetic compounds carrying arsenic, the therapeutic values of which will be tested by Dr. Loevenhart.

Yale.—In the Brady Laboratory of Pathology and Bacteriology of the Yale School of Medicine in affiliation with the New Haven Hospital, Dr. M. C. Winternitz and Dr. G. H. Smith, with a group of assistants, are carrying out two researches. The first of their investigations is an intensive study of methods for the isolation and identification of the gonococcus with a view to the determination of the homogeneity and heterogeneity of strains and their ætiological relationships. This investigation will involve (1) the development of a more readily applicable and certain method of cultivation and identification of the gonococcus; (2) a study of cultural characteristics of the strains; (3) a study of serological reactions of the strains, with (4) particular reference to the serological properties of strains present in cases where vaccine therapy is inefficient. The second research being carried out by Dr. Winternitz and Dr. Smith is concerned with the demonstration of the syphilitic nature of unusual lesions encountered at the post-mortem table. With the elaboration of methods for the demonstration of the *Treponema pallidum* in tissues it will be possible to investigate (1) presumptive lesions of syphilis more thoroughly, and (2) the occurrence of *Treponema pallidum* without manifest anatomical changes in tissues, and an attempt to explain according to the morphology of the ætiological agent the foreign body type of reaction encountered in tertiary syphilis.

Concluding Summary.

In presenting this series of references to investigations which are being encouraged through grants of Federal funds, Dr. Snow and Dr. Storey state that it has been their purpose to illustrate lines of research which give promise of yielding new knowledge of very great value to the economic and social welfare of mankind, and particularly to the succeeding generations. The members of the Association for the Advancement of Science have it in their power to accelerate the campaign for the conquering of the venereal diseases, first by studies of the life-history of the infecting agents of these diseases and of their epidemiology; second by more actively participating in the development of a sound public opinion in support of a broad practical programme for combating them.

MEDICINE AND THE LAW.

The "Neglect" of Feeble-minded Children.

REFERENCE was made in THE LANCET of Feb. 21st (p. 468) to a case in which Mr. Justice Greer, sitting as vacation judge, made orders which had as their effect the handing back to the custody of his parents a youth, 20 years of age but mentally defective, who was being treated in an institution through the action of the Sheffield Corporation. The question raised by that body as the local statutory authority under the Mental Deficiency Act, 1913, is one of considerable importance to similar authorities desirous of making the Act effective within their jurisdiction. The lad concerned was admittedly a fit subject for institutional treatment on account of his mental condition, and his care had been undertaken by the local statutory authority without opposition from the parents, who, however, had apparently changed their minds and desired to have their son back in his home. The short question for decision was whether the corporation could resist that application on the ground that he was "found neglected" within the meaning of Section 2 of the Act when they took him over. It was not alleged that he was being "neglected" in the sense of being left by his parents without proper lodging, or food, or clothing. It was not, in short, a case of "neglect" such as is to be found in the cases of cruelty to normal children with which we are familiar. He was, however, receiving no special treatment or training, and the case for the local statutory authority was rather that, as applied to a mentally defective person under 21, the word "neglect" would be satisfied if there were a lack of such care, attention, and education as the institution offered would supply.

The importance of the case, of course, lies in the fact that there are many mentally defective children in working-class homes who are either becoming worse or, at any rate, are losing all chance of improvement such as an institution would afford. Their parents are quite kind to them and do their best for them, but are unable to improve their condition. They are perhaps fond of them, and in any event are unwilling to part with them. The second section referred to, where it is applicable, gives power to deal with a defective "who is found neglected, abandoned, or without visible means of support, or cruelly treated." The same words are used in a later section of the Act (Section 15), which enables a constable to take to a place of safety a person whom he believes to be a defective and whom he finds "neglected, abandoned, or without visible means of support, or cruelly treated." Read together these expressions certainly leave doubtful the meaning which the Sheffield authority, actuated by a perfectly right and praiseworthy public spirit, sought to apply to the word "neglected."

In the present case there has been no further resistance. The orders nisi made upon writs of certiorari and habeas corpus by Mr. Justice Greer have been made absolute without opposition. This leaves the matter as a decision of a particular judge upon particular facts before him. If at any future time a local statutory authority under the Mental Deficiency Act gets a similar order made against it, or one in its favour, and the making absolute of the rule is opposed, the court will, no doubt, decide whether "neglect" in the case of a "mentally defective" differs from "neglect" as applied to the case of a normal child. The public and the legislature will then agree whether it is desirable that the law should be amended in the direction of increased efficiency or whether the prejudices of parents should prevail. They are natural and excusable prejudices, but they are certainly undesirable in the interest of the defective person.

Drunkenness as a Defence in Trials for Murder.

The House of Lords allowed recently an appeal from the Court of Criminal Appeal which had quashed a conviction for murder and had substituted a verdict of manslaughter in the case of R. V. Beard. Beard, being drunk, killed a child of 13 when committing rape upon her through suffocating her in the attempt to prevent her from screaming. The question for determination by the House of Lords was in what circumstances drunkenness can be taken into consideration for the purpose of reducing the crime of murder to manslaughter. The judgment delivered by the Lord Chancellor will be found reported at length in the *Times* of March 6th by those interested in a question which must always be closely associated with, and determined by, medical evidence. Without following the Lord Chancellor in recapitulating the history of the law regarding insanity and drunkenness as defences, and in the consideration of the precise extent to which the summing up in this particular case was defective, we may state briefly that the judgment in Beard's case may be taken to decide authoritatively that: 1. Insanity produced by alcoholism, such as an attack of delirium tremens, is to be distinguished from drunkenness, and that the tests laid down in 1843 in McNaughton's case are to be applied only when the former has been proved, and not in cases of drunkenness. 2. Evidence of drunkenness rendering the accused incapable of the intent essential to constitute the crime should be taken into account with other facts proved in order to determine whether or not he had that intent. 3. Evidence of drunkenness falling short of that indicated in (2) and establishing merely that his mind was affected by drink so that he more readily gave way to some violent passion does not rebut the presumption that a man intended the natural consequences of his acts.

In applying these principles to the case of Beard the Lord Chancellor pointed out that drunkenness could be no defence unless it could be established that Beard at the time of committing rape was so drunk that he was incapable of forming the intent to commit it, which was not the fact, and having regard to the evidence could not be contended. It was doubtful, in his lordship's opinion, whether there was any sufficient evidence to go to the jury that the prisoner was in any relevant sense drunk at all. There was certainly no evidence that he was too drunk to form the intent of rape, and an act of violence in furtherance of that felony was the cause of death. Such a killing was by the law of England murder. The appeal consequently was allowed and the conviction of murder restored, but it is understood that the capital sentence originally passed will not now be carried out.

The Contract in Panel Practice.

In a series of letters to the *Medical World* Mr. Adam Fox has criticised the position with regard to panel practice. He comments adversely upon the views of the authorities with regard to the disposal of goodwill in relation to panel practice and the attendance upon panel patients in emergency by other doctors at the cost of a medical man absent when summoned by a patient. He will have found many sympathisers in the views he expresses on these and other points. The lowering of the maximum number of patients to be on the list of any one practitioner, for example, is not likely to be welcomed by those whose lists exceed or are beginning to approach the maximum recommended. There is, however, one point where it is not at all clear that Mr. Fox is right, not merely in his opinion but in the reason which he gives for it. He is insistent in urging that the law courts should be open to practitioners signing contracts with Insurance Committees in disputes arising out of their fulfilment, and complains that "the right of appeal to the courts on the merits of a case is still refused. (It exists on a question of procedure mainly.)" We feel doubtful as to this grievance, and are not convinced of the wisdom of submitting to judges, or judges and juries, questions which are now sifted thoroughly by persons who, whatever their shortcomings, are familiar with their subject. We doubt if medical practitioners would find the change satisfactory. If, however, Mr. Fox is entitled to put forward a contrary opinion we venture to question the reasoning by which he supports it, and emphasises his advice to practitioners to refuse to sign the agreement, or contract, with an Insurance Committee. This we find dwelt upon in a letter published by our contemporary on Oct. 5th, 1917, and now reprinted in the form of a circular. "A contract," Mr. Fox writes, "is an agreement upon fixed terms, involving consideration and compensation made between responsible parties, and is therefore enforceable by law." "The document signed is not a contract." "The British Constitution gives every British subject the inherent right of having the law courts thrown open to him, and which even an Act of Parliament cannot take from him." This may be arguable within limits, but though the great majority of contracts are enforceable at law, we are all of us familiar with others which are not, and the right to enforce which has been expressly taken away by Acts of Parliament. It is a different matter to advise that "the only safe course for panel practitioners is to refuse to sign any document which is not a contract enforceable at law." Once signed, as matters stand, the contract precludes recourse to the law courts. If, however, a combined refusal to accept such contracts is urged, it must, on the other hand, be remembered that tribunals are provided to take the place of the law courts, which some may regard as better equipped for the purpose, and that, secondly, this has been done to enable the patients of panel practitioners to secure a hearing of their grievances without the expense and formalities attendant upon legal proceedings. In estimating the probability of success following upon such combined resistance as Mr. Fox urges, this latter point should be carefully considered.

FATAL ACCIDENT TO A RAND DOCTOR.—Dr. Donald Macaulay, a well-known medical man on the Rand, was killed by his own motor-car in Johannesburg on Jan. 27th. It is presumed that he must have cranked up the car in gear, with the result that it knocked him down and pinned him underneath, where he was found next morning. Dr. Macaulay was a graduate of Edinburgh University, for which he retained a great affection, and one of his sons is at present a medical student there. He had for many years been in charge of the health of the natives employed at the Geldenhuis Deep and other mines, and of a large native hospital. When a member of the House of Assembly for Denver his constituents were mainly miners, with whom he was very popular, and he lost no opportunity of furthering their interests in the House. He also instituted a campaign in favour of the compulsory medical inspection of children in the schools. During the war Dr. Macaulay served on a hospital ship in the German South-West Africa campaign, and afterwards in the Mediterranean. During the operations in German East Africa he was in charge of the hospital ship *Ebani*, which was fitted out under his supervision. Dr. Macaulay was one of the best known and most popular figures on the Rand, and will be greatly missed.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Oct. 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.			Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO$_3$).	Chlorine (Cl).	Ammonia (NH$_3$).
ENGLAND.										
London—										
Meteorological Office	13	0·19	1·24	3·51	0·52	1·45	6·91	0·45	0·42	0·02
Embankment Gardens	17	0·27	3·07	8·11	1·79	3·42	16·67	2·05	0·46	0·09
Finsbury Park ...	19	0·14	1·40	5·05	2·87	4·91	14·36	3·24	0·35	0·10
Southwark Park	23	0·10	2·73	5·42	3·85	5·87	17·97	4·16	0·62	0·21
Victoria Park ...	27	0·10	1·86	4·27	3·42	5·43	15·09	3·79	0·42	0·12
Wandsworth Com.	17	0·07	1·01	1·76	3·51	5·72	12·06	3·58	0·52	0·97
Golden Lane ...	18	0·06	2·43	3·69	1·41	2·82	10·41	1·59	0·62	0·15
Malvern	62	—	0·05	0·12	0·61	1·38	2·16	0·74	0·12	0·01
Newcastle-on-Tyne	130	0·20	3·74	6·05	4·15	5·71	19·85	2·67	1·84	0·19
Rochdale	—	—	—	—	—	—	28·51	—	—	—
Rothamsted	25	—	0·21	0·36	0·84	2·39	3·80	—	—	—
St. Helens...	65	0·32	3·29	8·21	0·48	3·55	15·85	1·03	0·64	0·08
Southport—										
Hesketh Park ...	73	0·02	0·36	0·93	0·54	4·16	6·01	1·27	0·36	0·03
Woodvale Moss...	73	—	—	—	—	—	6·27	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	21	0·02	1·00	2·91	0·54	1·38	5·85	0·93	0·17	0·07
Bellahouston Pk.	21	0·06	1·08	1·66	0·47	1·58	4·85	0·72	0·14	—
Blythswood Sq. ...	23	0·05	0·97	2·80	0·70	1·88	6·40	0·93	0·12	0·07
Botanic Gdns. ...	22	0·08	1·55	3·59	0·73	1·82	7·77	0·85	0·08	0·04
Richmond Park...	24	0·09	1·06	3·23	0·74	1·84	6·96	1·14	0·09	0·06
Ruchill Park ..	24	0·07	1·56	2·88	0·48	1·46	6·45	0·80	0·08	0·08
Queen's Park ...	22	0·04	0·60	1·35	0·29	1·49	3·77	0·53	0·08	0·04
Tollcross Park ...	24	0·11	1·07	3·86	0·86	2·05	7·95	1·08	0·10	0·05
Victoria Park ...	23	0·06	1·32	2·60	0·54	1·87	6·39	0·89	0·09	0·06

Nov. 30th, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.			Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO$_3$).	Chlorine (Cl).	Ammonia (NH$_3$).
ENGLAND.										
London—										
Meteorological Office	21	0·20	2·20	2·83	0·75	0·67	6·65	0·44	0·44	0·0
Embankment Gardens	23	0·17	2·77	7·66	1·45	3·44	15·49	1·81	0·62	0·0
Finsbury Park ...	31	0·11	2·38	6·77	2·82	5·62	17·70	2·86	0·53	0·0
Ravenscourt Pk.	16	0·00	0·40	1·64	2·08	2·89	7·02	1·64	0·51	0·1
Southwark Park	17	0·04	1·36	2·61	2·34	4·35	10·70	2·40	0·62	0·1
Victoria Park ...	27	0·05	2·59	9·37	2·88	4·24	19·12	2·71	0·48	0·1
Wandsworth Com.	16	0·06	0·74	1·98	2·52	3·56	8·86	1·88	0·56	0·0
Golden Lane ...	39	0·09	3·60	5·62	2·53	4·74	16·57	2·30	0·93	0·4
Malvern	36	—	0·14	0·49	0·34	0·54	1·52	0·54	0·15	Tr
Rothamsted	48	—	0·28	0·27	2·42	3·61	6·59	—	—	—
St. Helens...	67	0·28	2·88	4·77	0·20	4·47	12·60	1·55	0·67	0·0
Southport—										
Hesketh Park ..	52	0·02	0·58	1·28	1·19	3·69	6·76	1·20	0·69	0·0
Woodvale Moss...	31	—	—	—	—	—	4·05	—	—	—
SCOTLAND.										
Glasgow—										
Bellahouston Pk..	93	0·07	1·41	3·17	2·84	4·96	12·45	2·89	0·71	0·1
Botanic Gdns. ...	97	0·07	1·19	2·62	2·65	5·29	11·82	3·67	0·60	0·1
Queen's Park ...	110	0·10	1·60	2·95	2·60	4·12	11·37	2·98	0·64	0·1
Richmond Park...	104	0·18	2·12	7·04	2·70	6·43	18·47	3·20	0·71	0·
Ruchill Park ...	110	0·09	1·45	2·82	1·59	5·64	11·59	3·68	0·64	0·1
Tollcross Park ...	120	0·08	1·63	3·39	2·56	4·93	12·59	3·19	0·67	0·1

There were no returns during the month of October from the following stations: London (Ravenscourt Park), the results bei omitted as doubtful, and the two stations at Manchester. In November, again, there were no returns from the Manchester stations, an also Newcastle-on-Tyne and Rochdale, while at three Glasgow stations (Alexandra Park, Blythswood-square, and Victoria Park) th bottles containing the rainfall were broken by frost. Lead was reported present in the insoluble matter of the Glasgow specime examined.

"Tar" includes all matter insoluble in water but soluble in CS$_2$. "Carbonaceous" includes all combustible matter insoluble in wat and in CS$_2$. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Appro 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall. Tr. = Trace.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involv remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Offi are made in THE LANCET Laboratory.

URBAN VITAL STATISTICS.

(Week ended March 6th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons for the middle of last year, the annual rate of mortality, which had been 16·2, 15·6, and 16·4 in the three preceding weeks, rose to 16·9 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 17·4, or 0·4 per 1000 above the revised rate recorded in the previous week, while among the remaining towns the rates ranged from 5·7 in Carlisle, 8·6 in Eastbourne, and 9·0 in Cambridge, to 25·7 in Leeds, 26·4 in Aberdare, and 27·1 in Liverpool. The principal epidemic diseases caused 486 deaths, which corresponded to an annual rate of 1·4 per 1000, and comprised 210 from measles, 109 from whooping-cough, 87 from diphtheria, 53 from infantile diarrhœa, 23 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 2·6 in Grimsby and in St. Helens, 3·1 in Gloucester, and 5·0 in Barnsley; whooping-cough of 1·2 in Stockport, 1·4 in Birkenhead, 1·6 in West Hartlepool, and 1·7 in Lincoln; and diphtheria of 1·7 in Leyton and 1·8 in Hastings. The deaths from influenza, which had increased from 66 to 178 in the five preceding weeks, rose to 196, and included 54 in London, 27 in Birmingham, 14 in Leeds, 10 in Liverpool, and 7 in Manchester. There were 2255 cases of scarlet fever, 2006 of diphtheria, and 7 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2316, 2026, and 4 respectively at the end of the previous week. The causes of 43 deaths in the 96 towns were uncertified, of which 9 were registered in Birmingham and 3 each in London, Liverpool, South Shields, and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with a aggregate population estimated at 2,400,000 persons, th annual rate of mortality, which had been 14·7, 14·2, and 15 in the three preceding weeks, was again 15·7 per 1000. Th 337 deaths in Glasgow corresponded to an annual ra of 15·8 per 1000, and included 5 each from measles, whoopin cough, diphtheria, infantile diarrhœa, and influenza, and from scarlet fever. The 79 deaths in Edinburgh were equ to a rate of 12·1 per 1000, and included 2 each from measl and infantile diarrhœa and 1 from diphtheria.

Irish Towns.—The 165 deaths in Dublin corresponded to a annual rate of 20·7, or 1·2 per 1000 below that recorded the previous week, and included 7 from whooping-coug 4 from influenza, 3 from diphtheria, and 1 from infanti diarrhœa. The 214 deaths in Belfast were equal to a rate 27·0 per 1000, and included 12 from influenza, 4 each fro measles, scarlet fever, and whooping-cough, 2 each fro enteric fever and infantile diarrhœa, and 1 from diphtheria

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BIRMINGHAM DENTAL HOSPITAL.—The annu report of this hospital, of which Sir William Bowat is the President, shows an adverse balance on the yea working of £248. In the forthcoming year at least 12 ne dental operating chairs, at a cost of about £450, will required, and the increase in the number of students w have to be provided for. The report of the surgical committ states that conservative operations for the preservation the natural teeth and combating disease have greatly i creased in number. There are signs of a large influx students to the institution, the centre of dental treatme in the Midlands, and it is hoped that the Government a subscribers of the hospital will spare no effort to ass them in the provision of facilities for the training of the men.

Correspondence.

"Audi alteram partem."

THE DIAGNOSIS OF MALARIA.

To the Editor of THE LANCET.

SIR,—The publication of a letter from Colonel Mathew O'Connell in your issue of Feb. 28th and your annotation upon the probability-diagnosis of malaria calls for some reply from myself, as it was my article upon the necessity for early diagnosis and early treatment of malaria in armies in the field which prompted this correspondence. In the first place, I think it is a pity that anyone should throw cold water at the present moment upon microscopic diagnosis, which has been proved to be the most important and necessary and reliable means of diagnosis in malaria with a view to treatment; for if this is not the object of Colonel O'Connell's letter I fail to understand the issue that is at stake, nor can I see how the classical experiments of Sir Patrick Manson have any bearing upon microscopic diagnosis as applied to military medicine during the war in Palestine. I am sure Colonel O'Connell will admit that, by instituting a system of microscopic diagnosis in the field, many valuable lives were saved which would otherwise have been lost through non-administration of quinine, nor can I estimate how much military disability was thereby avoided. There can be no question, I submit, that everyone who served with the armies in the East during the war fully appreciated that a microscope and an expert pathologist—for a microscope without a trained eye behind it is of little use—are as essential a part of the field ambulance equipment as are surgical instruments, stethoscopes, or the nevitable cholera outfit which is so carefully treasured, but seldom used. How many hundred diagnoses of malaria, which would otherwise have been missed on clinical grounds, were made during these epidemics of subtertian malaria I would not like to guess, but whenever the clinical diagnosis became unsatisfactory in the midst of phlebotomus fever, influenza, relapsing fever, and enteric, the man with a microscope scored every time.

I remember standing in a casualty clearing station one morning in December, 1917, when a large number of sick filed past bearing upon their field cards such varied diagnoses as debility, bronchitis, influenza, pleurisy, disordered action of the heart, and what not, and how I found on microscopical examination no less han 22 were virulent infections with the subtertian parasite. This rapid examination occupied less than half an hour, but it is more than possible, since malaria had not been suspected at that season of the year, that ll these men would have been evacuated down the ine and would not have received specific quinine treatment till some two or three days later, and possibly one r more would have succumbed.

One has only to glance at the official report upon malaria in Palestine during 1918 in order to convince neself that the early microscopic diagnosis of malaria helped to conserve the man-power of Allenby's force uring that fateful summer, and I do not think it is an xaggeration to claim that nearly a division of European roops was spared by these means for the great advance n September of that year. From official sources it is nown that no less than 35,439 cases, or one-tenth of the otal force, were microscopically diagnosed as malaria uring 1918, and of these no less than 24,748 were erified by eight laboratories and diagnosis stations rimarily near the front line, 14,842 being benign and 906 subtertian infections. The total number of blood xaminations undertaken by these field laboratories and iagnosis stations was 111,261, a third of the total ghting force, in a period of less than six months.

During the advance into Syria the number of cases of evere or malignant malaria reached the colossal figure f 1800 fresh infections a week. Even this figure annot be taken as comprising the total number, as wing to the rapidity of the advance complete microscopic diagnosis became impossible. Even the differentiation of the two main forms of malaria—for instance, the benign, which seldom, if ever, kills—from the subtertian, which proved to be responsible for nearly 800 deaths in 1918, should alone justify the adoption of a microscopic diagnosis in every case of pyrexia. I am willing to grant that a very small proportion of cases may not be diagnosed on one microscopic examination alone owing to scantiness of the parasites in the peripheral blood or the early stage of the disease; but one's chances are greatly increased if a three-slide rule on three separate occasions, or even the thick film method, is adopted. It was by the institution of a routine of this kind that many benign cases (some 3000 in all) were retained for further service near the front line instead of being sent to hospital at the base, as would otherwise have been the case.

Colonel O'Connell quotes me as saying that three cases originally diagnosed as sunstroke, five as dysentery, &c., were afterwards found to be suffering from subtertian malaria—a very small number in so large a force. This is hardly correct. I quoted no numbers of the total misdiagnoses, but only gave instances where the discovery was made too late—on the post-mortem table! I would like to cite one instance in this connexion. After the occupation of Damascus one pathologist reported 11 out of 15 patients isolated as dysentery, and 30 out of 45 diagnosed as influenza were in reality subtertian malaria, in one field ambulance alone. This by no means exhausts an extensive list of critical medical and even surgical cases in which the diagnosis and treatment were made clear by simple microscopic examination. I have seen three cases sent down as lunatics, two of which were fatal subtertian infections, and one man under arrest for suspected drunkenness for the same reason.

After the adoption of the diagnosis station scheme in the E.E.F. I find from my records of over 100 autopsies on malarial cases that in no single instance had the existence of the infection been missed during the victim's lifetime. This certainly was not the case before the adoption of the scheme.

I do not think it is claiming too much to say that field laboratories more than justified their existence in the E.E.F.; at any rate, they assisted in making a diagnosis in at least 80 per cent. of medical cases. The amount of work they got through was phenomenal. In the last laboratory to which I was attached two officers and three men were responsible for over 62,000 reports on blood and fæces, including over 500 blood examinations for malaria in one day, during the year 1918. One of the great advances in clinical medicine has undoubtedly been our ability to diagnose malaria infections with precision, and, again, I hope that Colonel O'Connell's letter will not lead to the diminished use of the microscope in malaria diagnosis; even in the case of patients in this country I know of cases in which, for want of a microscopic examination, the real cause of death or illness—malaria—has been overlooked.

I am, Sir, yours faithfully,

PHILIP MANSON-BAHR.

Weymouth-street, W., March 1st, 1920.

THE SITE OF INOCULATION IN SYPHILIS.

To the Editor of THE LANCET.

SIR,—Having read the investigations on syphilis which have been conducted by Dr. P. Fildes and Surgeon-Lieutenant Commander R. J. G. Parnell at Haslar Hospital (Medical Research Committee, Special Report Series, No. 41 and 45 [see p. 614]), I asked the writers if they could supply me with data regarding the sites of inoculation of their patients. In response Dr. Parnell has most kindly supplied me with the data of 2743 consecutive cases of the Haslar series. It will be seen that 68·7 per cent. of patients are infected on the prepuce, glans, or meatus (4·4 per cent. under a phimosed prepuce), 10·6 per cent. on the body or root of penis or on the scrotum, 19 per cent. unstated or combined lesions, and 1·7 per cent. extragenital lesions.

These facts were supplied with the permission of the Medical Director-General of the Navy; and, as I think they are of general interest to the medical profession at the present time, I have asked and obtained leave to publish the table which is herewith appended.

I am, Sir, yours faithfully,
DOUGLAS WHITE,
Honorary Secretary, National Council for Combating Venereal Diseases.
Avenue Chambers, Southampton-row, London, W.C.,
March 2nd, 1920.

ENCLOSURE.

Sites of Inoculation Lesions in 2743 Cases of Syphilis.

From the Indexed Records at R.N. Hospital, Haslar, by Surgeon-Lieut. Commander R. J. G. PARNELL, R.N., Specialist in Venereal Diseases, Haslar.

Genital Inoculation Lesions.

In urethra (concealed)	2	In sulcus	420
Within meatus (concealed)	25	On prepuce (skin 328, mucous membrane 346)	674
At meatus (visible)	94	On frænum preputii	192
On glans penis	270	Phimosed prepuce (concealed)	121
On corona glandis	86		

Total, 1884 = 68·7 per cent.

Body of penis	209	Scrotum	20
Root of penis	50	Peni-scrotal angle	13

Total, 292 = 10·6 per cent.

Site on penis not stated	238	Combinations of above	283

Total, 521 = 19 per cent.

Extragenital Inoculation Lesions.

Lip	20	Finger	2
Eye (palpebral conjunctiva)	3	Umbilicus	1
Anus (at or near)	7	Nose	1
Thigh	2	Neck	1
Pubes	6	Abdomen	1
Chin	1	Buttock	1

Total, 46 = 1·7 per cent.

Remarks.

1. In addition, 101 cases had manifest signs of syphilis or had cerebro-spinal syphilis, yet no site of the inoculation lesion was found; all the men denied a sore on the penis. A few of these men gave a history of "gonorrhœas." The majority denied having had V.D. in any form, *but admitted risks of infection.* A very small number denied V.D. and stated that they had never exposed themselves to infection. Three of these had definite signs of congenital syphilis.
2. One case of genital and extragenital inoculation lesions occurred (lip and penis).
3. Of the 238 cases in which the site (on penis) was not stated, the vast majority of these were old infections giving a definite history of a sore on the penis, but no scar was found. In a few cases there was an indefinite amount of scarring at a site other than that at which the sore apparently had been.
4. 46 cases were extragenital—1·7 per cent.

MYALGIC PAINS AND MANIPULATION.

To the Editor of THE LANCET.

SIR,—At the risk of appearing tedious I would like to add a few words to Mr. Haldin Davies's letter which appeared under the above title in your issue of Jan. 10th. Mr. Davies says that there is "something in manipulative surgery"; with that conclusion I cordially agree. No one was more opposed than myself to any recognition of or concession to unqualified practitioners, but when case after case drifted off to the manipulative surgeon only to return cured it gave me furiously to think. Much against my inclination I am compelled to admit that the manipulative surgeon possesses some skill which I and possibly some of my professional colleagues lack.

So many cases of displaced cartilage and deranged joints have been put right by simple manipulation when I and others had failed that I am bound to confess that such patients were well spared the operation that had been suggested. It seems a pity that the profession declines to investigate these problems. The proposition is a simple one: either the manipulative surgeon possesses some special skill of which the public and the profession should have the benefit, or a large number of medical men and a larger number of the public have been hopelessly misled. It is difficult, if not impossible, to accept this latter alternative.

The whole matter could easily be cleared up by an investigating committee, and I am not by any means alone in wishing to have this done. Believing, as I do, that many cases of deranged joints can be submitted successfully to manipulation, which I myself cannot practise, am I justified in advising an operation of definite risk and of somewhat uncertain result until these milder manipulative measures have been tried?

I am, Sir, yours faithfully,
March 6th, 1920. W. H. CLAYTON-GREENE.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—Had I known that my letter would be published I should have asked you to spare me space to go into details, for which a mere acknowledgement did not seem to call. I entirely endorse the admirable letter of Major W. H. Broad, who, I may say, has had an exceptionally wide experience of the work of the blind masseur, and whose admirable orthopædic work is known to most members of the medical profession.

For reasons which I am free to confess do not seem entirely convincing to myself, or to many eminent medical men, it has been thought fit to impose limitations upon the examinations in remedial exercises which are set to blind students, and this in spite of the fact that a totally blind man passed the full examinations set to sighted folk, and not only passed them, but was first in the list. This blind man has exceptional ability, and perhaps the full examination might be rather beyond the scope of some blind masseurs. At the same time, the examination which is set them renders a man who passes it quite proficient, for all ordinary requirements, and would prove amply sufficient for any but very special cases.

I very much fear that the publication of my letter in your last issue may lead your readers to suppose that I do not possess full faith in the qualifications of the blind masseur. This is very far from being the case. The blinded soldiers who have been trained in this most useful profession are giving complete satisfaction in al parts of the British Empire; indeed, I go so far as to say that wonderful as the successes of St. Dunstan's have been, the success of those of its inmates who have been trained in massage is the most wonderful of all.

I am, Sir, yours faithfully,
ARTHUR PEARSON,
Chairman, Blinded Soldiers' and Sailors' Care Committee
President, National Institute for the Blind,
224, Great Portland-street, London, W.
St. Dunstan's, Hanover Gate, Regent's Park, N.W.1,
March 6th, 1920.

*** We could have no idea that Sir Arthur Pearson did not intend his letter for publication. Like him we have every sympathy with the blind students, and are aware of their exceptional qualities in many directions. The annotation indicated a place in the masseur' work where the blind must, in our opinion, be handicapped, and that view is unaltered.—ED. L.

TREATMENT OF CARBUNCLES, BOILS, ETC
BY LARGE DOSES OF DILUTE SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—On March 15th, 1913, I called attention in TH LANCET to the great success of the dilute sulphuric aci treatment in the above-mentioned conditions an staphylococcic infection generally. Since the dat mentioned I have had some very severe cases to dea with, which have resisted all ordinary remedies, including injections with serum, but have yielded completely to the sulphuric acid treatment.

Only three weeks ago I had a most inveterate cas of acne sent to me of 20 years' standing, which ha been treated by all the ordinary means and for the las few years by repeated injections of serum without an benefit. I put this patient at once on 30-minim doses dilute sulphuric acid (made by adding 3 fluid ounces of th strong acid to 29 fluid ounces of water) and the resu has been a complete cure in three weeks. Th particular patient was covered over the whole bod from head to foot with pustules and was a splendi example of the power of this simple remedy whe given internally and in sufficient doses (i.e., ♏ xx. ♏ xxx.) also of the right strength.

As I said in my former communication to you journal, smaller doses of a weaker strength of the aci are of no use whatever. The 30-minim dose, dilut with a wineglassful of water is, in my experience over 40 years, always well tolerated, and has, witho exception, always proved successful. My son, D

Russell J. Reynolds, who has returned from active service in India, tells me it is being used by some of the medical officers there with the best results. I feel that in all cases of suppuration it should at least be tried. My reason for writing again on this subject is that this mode of treatment does not seem even now to be sufficiently well known.

I am, Sir, yours faithfully,
J. REYNOLDS, M.D. Brux., M.R.C.S.

Brixton-hill, S.W., March 6th, 1920.

Obituary.

SAMUEL WEST, M.A., M.D. OXON., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S AND THE ROYAL FREE HOSPITALS.

THE death of Dr. Samuel West on March 2nd, at the age of 72, removes another of that band of London physicians which understood how to reconcile the claims of important teaching appointments with private consulting work, and still to find time to devote to public and benevolent purposes.

Samuel Hatch West was born at Carlisle on April 13th, 1848, the son of John West, Deputy Inspector-General of Mails to the General Post Office. He was educated at Westminster School, where he was Queen's scholar, going on to Christ Church, Oxford, where, after taking honours in Classical Moderations, he began the work of his life by studying physiology in the museum under Professor Rolleston. In this subject he took a first-class in the Final Schools. Even then his teachers recognised in him a man with a future, for, beginning as a successful pupil, he soon became a close friend of both Rolleston and Acland, and he was elected Radcliffe Travelling Fellow. Probably West's choice of St. Bartholomew's as his medical school was determined by his friendship with Rolleston. Since in those days the official course of study for the Oxford M.B. could not begin till after taking the B.A., West and his contemporaries from Oxford were what would be now called "full-time students" at St. Bartholomew's. In the preliminary subjects and in physiology he had not much to learn there, but he filled up his spare time with advanced and original work. Working under the late Dr. W. J. Russell, he designed a method of estimating the urea in urine by means of the hypobromite reaction, and later was one of the first to apply this clinically. His study of medicine proper was carried out chiefly in the wards of Dr. James Andrew. After qualification he became house physician to Andrew, and between them close bonds of intimacy developed. They were from the same university, had the same eager capacity for work and devotion to medicine, and West very early in his career became Andrew's colleague at Victoria Park Hospital. Andrew's influence upon him was seen later in his principal publications, which were on diseases of the respiratory organs and on granular kidney.

Graduating M.B. Oxf. in 1875, and obtaining the M.R.C.P. Lond. in 1877, Dr. West became assistant physician to St. Bartholomew's Hospital in 1887, and full physician 17 years later, holding, at the same time, the lectureship in the principles and practice of medicine. At the same time he was physician to the Royal Free Hospital and to the Victoria Park Chest Hospital.

One of his colleagues writes of this period of his life: "When at the Royal Free Hospital, on the illness of Dr. Buchanan Baxter, and subsequently at the Victoria Park Chest Hospital, the writer first became associated with Dr. West, he received much kindness at his hands and much help, for which the indebtedness remains. On many occasions the junior colleague was accustomed to turn to his senior for assistance in difficult clinical cases, and he never failed to be impressed by his clinical acumen, his breadth of view, and the soundness of his advice. His teaching was greatly valued by the students at the Royal Free Hospital, and in proof of this it may be stated that if they had a grievance it was that they wanted more not less of that which he had to impart. ...... As physician Dr. West was essentially the clinician, for though he came to the bedside thoroughly conversant with scientific methods, and, in particular, with an exceptional knowledge of chemistry, he avoided the shallows of the ultra-scientific application of those methods. He was a close student of pathology, and both in his outlook and in his teaching it figured prominently."

Recognised thus as teacher and clinician, Dr. West held, as was natural, at one time or another, positions as examiner at the Universities of Oxford, Cambridge, London, and Birmingham, and at the Conjoint Board. He was three times censor to the Royal College of Physicians of London. He presided over the medical and the clinical sections of the Royal Society of Medicine. He was Lettsomian lecturer and treasurer to the Medical Society of London.

And first and foremost he will be gratefully remembered for his labours to alleviate distress through the Royal Medical Benevolent Fund. Here he held office continuously from 1893, when he became honorary financial secretary. In 1899 he succeeded Sir W. Broadbent as treasurer, on the latter becoming president of the Fund. On the resignation of Sir John Tweedy in 1917, Dr. West became president until the time of his death. In this long service Dr. West became so identified with the Fund that some spoke of it as "West's Fund." As treasurer one of his first acts was to insist that all legacies should be invested to provide annuities, and he had the satisfaction of seeing the number increased from 100 to 170, while the total income of the Fund rose during his management from £3625 to over £7000. Owing principally to his exertions, consent was obtained to apply the term "Royal" to the Fund, with the name of Prince Arthur of Connaught as vice-patron. In the following year he organised the festival dinner and secured in subscriptions over £3000. Foreseeing the probable financial difficulties in which many medical men, suddenly called to join the army and leave their practices, would be placed, Dr. West initiated the special War Emergency Fund, and one of his last acts was to secure from the National Relief Fund a donation of £10,000 towards its objects. During the war he became chairman of the executive committee of the Professional Classes War Relief Council. Through this agency he was able to place valuable information regarding education at the disposal of many medical men. Only those who knew Dr. West's keen interest in these Funds can appreciate the time and care he gave to their welfare.

West was not a voluminous writer, but at each stage of his active work he contributed something to exact knowledge. His practical guide for the use of students entitled "How to Examine the Chest," appearing first in 1883, ran into three editions. His Lettsomian lectures on Granular Kidney and Physiological Albuminuria, published in 1899, were for many years a standard work of reference. A second edition of his largest work on "Diseases of the Organs of Respiration," in two volumes, was published in 1909. His smaller writings included articles, in different journals and year books, on acute and chronic nephritis, pneumothorax, sulph-hæmoglobinæmia, the amount of nitrogen excreted by man at rest, and hypertrophy and dilatation of the heart.

Of West's personal qualities it is difficult to give a comprehensive view. He was a sociable man, full of many interests. He had a great capacity for clear thinking and exposition, and also for organisation. An excellent musician and a good singer, while house physician at St. Bartholomew's Hospital he organised, along with his colleagues in office, Darbishire, Abercrombie, and Ormerod, a concert in the Great Hall which became an annual affair, and from which developed the present hospital musical society. The finer qualities of head and heart—friendliness, good fellowship, social attractiveness, wide human interests—all these West possessed in a high degree, and combined with ability, energy, and devotion to medicine, they made possible that life full of distinction and of useful work for which he will be long remembered.

Dr. West married Margaret, daughter of Sir Edward Frankland, F.R.S., by whom he had three sons and three daughters.

SIR THOMAS ANDERSON STUART, M.D., LL.D. EDIN., D.SC. DURH.,

PROFESSOR OF PHYSIOLOGY AND DEAN OF THE MEDICAL FACULTY IN THE UNIVERSITY OF SYDNEY.

THE death is announced of Professor Stuart, who was largely responsible for the existing public health legislation in New South Wales, and whose interest in his calling materially promoted the welfare and dignity of medicine in Australia.

Thomas Anderson Stuart was born at Dumfries on June 20th, 1856, the son of Alexander Stuart, Dean of Guild. He was educated at the Dumfries Academy, at the gymnasium at Wolfenbüttel, and in the Universities of Edinburgh and Strasburg, graduating M.B., M.Ch. at Edinburgh in 1880 with first-class honours and the Ettles scholarship. The following year he was appointed assistant to the Professor of Institutes of Medicine, proceeding later to the M.D. of the University, when he was gold medallist.

His name will be chiefly associated with Australia, where he spent his life from the time when he went out in 1883 to be professor of physiology in Sydney. In his new country his life was a long story of official appointments successfully discharged. He was twice president of the Royal Society of New South Wales, and among the many offices which he held were those of medical adviser to the Government and health officer for Port Jackson, president of the Board of Health, chairman of the board of directors of Royal Prince Alfred Hospital, president of the Health Society of New South Wales, president of Civil Ambulance Brigade, trustee of the Australian Museum, president of the Highland Society of New South Wales, councillor of the Women's College, president of the Zoological Society, vice-president of the Industrial Blind Institution. He took a prominent part in all public health and educational movements, and was president of the British Immigration League of Australia. He was an honorary M.D. of the Universities of Sydney and Melbourne, in 1900 was given the LL.D. by the University of Edinburgh, and later the D.Sc. by the University of Durham.

In 1914 he received the honour of knighthood in recognition of his full and valuable activities.

The Services.

ARMY MEDICAL SERVICE.

Col. N. Faichnie retires on retired pay.

Temp. Hon. Col. Sir J. Collie relinquishes his commission, and is granted the honorary rank of Lieutenant-Colonel.

ROYAL ARMY MEDICAL CORPS.

Temp. Lieut.-Col. R. P. Jack (Lieut.-Col., Sco. Rif., T.F. Res.) relinquishes his temporary commission.

Major J. H. Campbell and Temp. Capt. J. P. Davidson relinquish the acting rank of Lieutenant-Colonel.

Major H. T. Wilson relinquishes the temporary rank of Lieutenant-Colonel.

Temp. Major N. G. Cooper to be acting Lieutenant-Colonel.

Temp. Capt. F. D. Saner relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Major I. A. O. MacCarthy retires on retired pay.

Temp. Major W. C. Bosanquet (Bt. Major, R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

The undermentioned relinquish the acting rank of Major: Capt. H. G. Winter; Temp. Capts. E. J. Selby, G. W. R. Rudkin, A. Scott, C. A. Brisco, L. H. C. Birkbeck, G. C. Adeney.

Temp. Capt. A. W. Wilcox to be acting Major whilst commanding troops on a hospital ship.

Capt. E. G. S. Cane to be temporary Major whilst specially employed.

G. W. Beresford, late temporary Captain, to be temporary Major.

Temp. Capt. W. J. Pearson to be acting Major.

Capt. J. W. C. Stubbs is seconded for service with the Egyptian Army.

J. G. Shaw, late Can. A.M.C., to be temporary Captain.

The undermentioned Lieutenants (temporary Captains) to be Captains: W. D. Whamond, T. L. Henderson, A. G Stevenson, R. H. C. Pryn, B. J. Daunt, A. J. Bado, H. M Alexander.

O. T. J. C. De H. Clayre to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Majo (acting Lieut.-Col.) R. D. Hotchkiss (granted the rank of Lieu tenant-Colonel). Temporary Majors retaining the rank o Major: C. B. Dobell, J. C. Woods, C. R. Nicholson. Temporar Captains granted the rank of Major: F. D. Saner, E. S Sowerby, R. H. Strong, P. K. McCowan, J. T. Grant (actin Major), O. R. L. Wilson, W. M. Oakden, C. C. Harrison Temporary Captains retaining the rank of Captain: A. R Mitchell, W. H. Orton, A. J. R. Taylor, C. G. Lees, T Kennedy, J. Williamson, J. A. Hadfield, C. L. Herklots W. W. Halsted, G. R. Spence, P. C. H. Ryan, G. E. Kinnersly D. S. Cassidy, T. B. Marshall, A. W. Ritchie, J. T. Daly G. Cock, E. G. Y. Thom, A. Macdonald, R. S. Gibson (actin Major), M. A. Milne, W. E. Procunier, V. E. Sorapure L. Milburn, L. W. Evans, N. McA. Gregg, J. H. Jones R. J. Harley-Mason, J. R. MacNeill, R. Williams, E. C Bowden, A. J. Hawes. Temp. Lieut. D. C. Macaskill (retain the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. K. D. Murchison relinquishes the acting rank o Lieutenant-Colonel.

The undermentioned Captains relinquish the acting ran of Major: A. McL. Ferrie, W. J. Webster, C. E. H. Gater W. Johnson, B. Goldsmith, C. J. B. Way, R. Nixon, H. D Brown, A. Picken.

Capt. J. Berry resigns his commission.

Lieutenants to be Captains: P. S. G. Cameron, L. H Bartram.

Officers relinquishing their commissions:—Capt. E. B Jones. Captains retaining the rank of Captain: H. S. A Alexander, I. G. Innes, F. L. Heap, O. Johnston, W. Griffiths J. D. MacCormack, H. E. Rhodes, M. W. Geffen, J. A. C Guy.

TERRITORIAL FORCE.

Capt. (acting Lieut.-Col.) J. Miller relinquishes the actin rank of Lieutenant-Colonel on ceasing to be speciall employed.

Capt. (acting Major) J. B. Bate relinquishes the actin rank of Major on ceasing to be specially employed.

Capt. A. D. Kennedy is restored to the establishment.

4th London General Hospital: Capt. (Bt. Major) W. C Bosanquet is restored to the establishment on ceasing t hold a temporary commission in the R.A.M.C.

2nd Scottish General Hospital: Capt. E. Matthew i restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Capt. O. H. Gotch and Lieut. R. H Turner are transferred to the unemployed list.

Dental Branch.—Capts. J. Jones and N. L. Smallbone ar transferred to the unemployed list.

INDIAN MEDICAL SERVICE.

Lieut. (temp. Capt.) Jagat Ram Kochhar to be Captain.

Temp. Lieut. J. Portelli to be temporary Captain.

The King has approved the retirement of Major F. O'D Fawcett and the resignation of Capt. Prabodh Chandra Roy

JOHANNESBURG MEDICAL SCHOOL.—On Jan. 28t the Governor-General of the Union of South Africa laid th foundation-stone of the Medical School of Johannesbur Mr. G. B. Steer, M.P.C., the Mayor, presided at the lunch tha followed, and proposed the health of the Governor-Genera Lord Buxton, in responding, remarked that his grandfathe was in his day a distinguished physician, and that he (H Excellency) had often wished that he had been allowed adopt the profession. He thought it was time th Johannesburg had its own medical school, especially there were certain diseases peculiar to miners whic required study, diagnosis, and treatment. He did n think the people of Johannesburg suffered from sleepin sickness, but they did suffer from nerves and excitabilit Indeed, his experience of five and a half years in Sout Africa was that Johannesburg and the Reef were t storm-centres of the country. At the stone-laying cer mony Lieutenant-Colonel W. Dalrymple, acting chairma of the School of Mines, said it was hoped to provide clas rooms, and, if necessary, clinical lecture theatres, for t departments of anatomy, physiology, pharmacolog bacteriology, and pathology. Lord Buxton said that was glad to know that the medical school would be open o equal terms to men and women.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 3RD.

Fleet Surgeons' Pensions.

Sir CLEMENT KINLOCH-COOKE asked the First Lord of the Admiralty whether he was aware that some 25 surgeon-commanders (fleet surgeons) had been placed on the retired list after reaching the age of 55 or completing 30 years' service, and notwithstanding that many of them were called up in August, 1914, and served throughout the war, some as surgeon-captains, their retired pension was only 10 per cent. higher than the rate fixed for surgeon-commanders 40 years ago, and if he would consider the possibility of increasing the pensions of surgeon-commanders called up for service during the war, as has been done in the case of officers in other branches of the service.—Mr. LONG replied: A number of surgeon-commanders (fleet surgeons) who retired before the war on reaching the age of 55 or on completing 30 years' service were called up during the war and served in the rank they held on the retired list, whether surgeon-captain or surgeon-commander. The exact number could not, however, be ascertained without examining each case separately. While re-employed such officers received, in addition to the full pay and allowances of their rank, a bonus of 25 per cent. of their full pay in lieu of counting the additional time served towards increase of retired pay. Under these conditions of service they would not have been entitled to increase of retired pay, but in accordance with the general arrangement made in the case of retired officers who served in a service capacity during the war, their retired pay was re-assessed on the new scale at the rates applicable to their age and rank at the date they originally retired. In the majority of cases the rate of retired pay was thus raised from £547 10*s.* to £600 per annum. The procedure adopted in re-assessing the rates of retired pay of surgeon-commanders called up for service in the war has been exactly the same as that adopted in the case of officers in other branches called up for service. It is true that the increase of retired pay is proportionately not so great in the case of the surgeon-commanders in question as in the case of certain other ranks, but some dissimilarity in this respect is inherent in any scheme which is framed to put the different branches of the Naval Service as far as possible on the same basis.

The Future of Poor-law Infirmaries.

Lieutenant-Colonel FREMANTLE asked the Minister of Health if he was aware that the present uncertainty as to the future utilisation of existing Poor-law infirmaries was hampering boards of guardians in their endeavours to make adequate provision for the needs of the sick either by way of extension or improvement of their institutions; whether, in the interests of an early reorganisation of health services, he would inform boards of guardians what was the policy of the Ministry with regard to these particular institutions and the use to which they were destined to be put under the new scheme of health services which was contemplated; and whether he was aware that the various health authorities in London and boards of guardians were particularly handicapped in making proper institutional provision for tuberculous persons owing to the failure of the Ministry as yet to carry into effect the declared policy of the Government with regard to the Poor-law.—Dr. ADDISON replied: Yes, Sir; but the matters referred to by the honourable Member involve questions of local government and other subjects of the first importance that can be dealt with only by legislation; and it is obviously necessary that I should lay proposals before Parliament and obtain its sanction thereto before I could properly adopt towards local bodies the attitude suggested in the question.

National Physique and Housing.

Mr. GRATTAN DOYLE asked the Minister of Health if his attention had been called to the report of the National Service Medical Boards regarding the defective physique of great numbers of men who were examined for military service; what action he proposed to take to improve the health and physique of the nation; and, seeing that the shortage of proper housing accommodation was one of the most serious contributing causes, what progress had been made during the last three months to deal with such shortage.—Dr. ADDISON replied: Yes, Sir; but it is quite impossible to set out within the limits of a reply to a Parliamentary question that very large variety of ways in which the causes and the treatment of disease are to be dealt with. In reply to the concluding paragraph of the question I may say that the number of houses for which the acceptance of tenders has been approved has increased during the last three months from about 12,000 to about 60,000.

Poor-law Infirmaries and Voluntary Hospitals.

Mr. BRIANT asked the Minister of Health if he would take steps to coördinate the work of the Poor-law infirmaries and voluntary hospitals so that persons requiring treatment should be sent direct to the most suitable institution, and should thus be saved the delay and danger of seeking admission at two or more institutions before obtaining the necessary treatment.—Dr. ADDISON replied: I am aware of the case which the honourable Member has in mind, and I will consider the question; but I have no jurisdiction over voluntary hospitals.

Mr. BRIANT: Does the right honourable gentleman not realise that no effective medical administration in the country can be obtained if he does not draw a distinction between Poor-law infirmaries and hospitals?—Dr. ADDISON: I am not quite sure that any effective administration would maintain that distinction.

Mr. BRIANT: Will the right honourable gentleman introduce legislation to make it effective?—Dr. ADDISON: Nobody is better acquainted with the complications of this subject than my honourable friend.

Middle Classes and Sickness Treatment.

Colonel NEWMAN asked the Minister of Health whether he was aware that, owing to heavy taxation and the increase in the cost of living, large numbers of the middle classes were unable to afford the expense of treatment and nursing in their own homes should illness overtake them; whether he was aware that they were unable and unwilling to obtain admission to and further overcrowd the large hospitals maintained by voluntary contribution for the pre-war poorer classes of the community; and what action did he propose to take to meet their necessities.—Dr. ADDISON replied: I am fully aware of the present pressure upon the voluntary hospitals, and the general question of the provision of hospital treatment has for some time past been engaging the attention of the Medical Consultative Council, from whom I am expecting a report shortly. I am not yet in a position to make any statement.

The Capital Value of Panel Practices.

Major PRESCOTT asked the Minister of Health whether he was aware that when the Regulations 16/1/C of the Government Insurance Act came into operation medical panel practitioners would be deprived of the advantage of the capital value of their practices; whether he was aware that a promise was given in 1913 to the effect that such an interest would be assured to the medical practitioner; whether he was aware that panel practitioners were apprehensive of the effect of these regulations upon the disposal of their practices; and if he would take into consideration the expediency of reviewing the situation.—Dr. ADDISON replied: I am not aware that any promise has been given in 1913, or indeed at any time, of the character indicated in the question. I am aware that some insurance practitioners are apprehensive—unnecessarily so—of the effect of the regulations referred to, and I am sending my honourable friend a copy of a reply which I have caused to be addressed to representations made to me on the subject on behalf of the Conference of Panel Committees.

THURSDAY, MARCH 4TH.

Salaries of Pensions Medical Officers.

Captain LOSEBY asked the Pensions Minister if the salaries of medical officers attached to the Ministry of Pensions hospitals were in some cases much in arrears; and if there was any reason why they should not be paid up to date.—Sir L. WORTHINGTON-EVANS replied: I have made inquiries, and am informed that the salaries of all medical officers who have been duly appointed to the staff of the Ministry are punctually paid at the end of each month. In some cases there has been delay in the formal appointment of medical officers who have taken up duty in advance of appointment and are thus left temporarily without pay. I am inquiring into this.

Dora Restrictions and Dublin Medical Services.

Captain REDMOND asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the recent Order under the Defence of the Realm Act in Dublin, whereby citizens were prohibited from being out of doors between 11.30 P.M. and 5 A.M., was inflicting serious hardship on the population, especially the poorer section in cases requiring medical and hospital attention; whether the nurses in many of the Dublin hospitals had declined to attend calls, and, as a consequence, maternity and other hospital cases were without the services of nurses and medical practitioners; and whether, in view of the grave consequences to which innocent and suffering people were being subjected, he was prepared to take steps to suspend the Order.—Mr. MACPHERSON replied: No complaints have reached me in this matter. From inquiry at the Dublin hospitals I have ascertained that in no case has there been a refusal to send out nurses in maternity cases. In two cases (Coombe Hospital) where nurses (permits not yet having been obtained) were required during prohibited hours the police escorted the nurses to their destination. The hospital authorities have since applied for permits for doctors and nurses. I believe, as a result of the inquiries made at hospitals, that the new regulations are rather welcome than otherwise to the staffs. There is a greater sense of protection when called out at night, and the only real inconvenience is that caused by the action of the corporation in extinguishing the street lamps at 11.30 P.M., thus leaving the city in complete darkness at night.

Captain REDMOND: Is the right honourable gentleman not aware that the matrons of all the principal hospitals in Dublin, including the Maternity Hospital in Holles-street and the Coombe Hospital, have stated publicly through the press that they will refuse to allow any of their nurses out between 12 midnight and 5 A.M.?—Mr. MACPHERSON: I cannot add anything to the answer I have given, one short sentence of which says: "The hospital authorities have since applied for permits for doctors and nurses."

Captain REDMOND: Is it not a fact that some poor women in a very advanced stage of pregnancy were not able to reach the hospital owing to these iniquitous restrictions?—Mr. MACPHERSON: I am not aware of that. I am convinced of this, that in cases of that kind the Government would be prepared to do everything to assist.

Reorganisation of Local Health Services.

Major HILLS asked the Minister of Health whether, now that his Ministry was in working order, he intended to suggest any, and what, steps to reorganise the local health services.—Dr. ADDISON replied: Yes, Sir; the matter is engaging my earnest attention, but I am expecting to receive shortly the recommendations of the Statutory Consultative Council on Medical and Allied Services, which I have undertaken to publish when available, and which must, of course, be carefully considered before the steps referred to in the question are decided upon.

Small-pox.

Sir A. YEO asked the Minister of Health if his attention had been called to a very serious state of affairs in connexion with the ex-Government stores being dumped at Bell Wharf, Bromley-by-Bow, E., and the reported death of one woman working in the wharf, and the isolation of five other persons from the same place, one of whom was in the service of the medical officer of health of the Poplar council, and what steps he proposed to take, if any, to rid the neighbourhood of the cause of the outbreak, as the matter was causing much alarm to the inhabitants.—Dr. ADDISON replied: Yes, Sir; I am aware of this case, and the Ministry in conjunction with the sanitary authorities has been taking active steps for some time past in endeavouring to check the spread of infection from the different centres to which it has been traced from the source indicated amongst, I regret to say, a population largely unvaccinated.

Sir A. YEO: Will the right honourable gentleman take steps to have this dump burned in order that the disease may be stamped out? Otherwise there will be more outbreaks and more serious trouble for the Health Department.—Dr. ADDISON: The value of the stores dumped is about a quarter of a million. The small-pox has now spread to various other places in the district, so that burning the dump would not remove the danger.

Sir A. YEO: Is not the life of this poor woman worth more than a quarter of a million pounds?—Dr. ADDISON: It would not restore the woman to life to burn the dump.

Sir A. YEO: But it would save others from being buried.

Decisions on Second Pensions Report.

In reply to Captain COOTE and Sir M. BARLOW, Sir L. WORTHINGTON-EVANS stated that the Government had decided to accept the majority of the 49 recommendations made in the Second Report of the Select Committee on Pensions. In particular it had been found possible to accept the whole of the recommendations as to the disability scales of pay of regular and temporary officers. The recommendations with regard to officers' widows' pensions, the pensions and allowances in respect of children, and the loading up of pre-war earnings for the assessment of alternative pensions had also been accepted with slight modifications. With regard to the recommendations concerning the dependents of non-commissioned officers and other ranks the Government had accepted the proposals to increase the limits of pre-war dependents' pension and the special need pension to 20s. a week, and were prepared to give the Special Grants Committee discretion to deal with certain cases of special hardship, as recommended by the Select Committee. The Government were, however, unable to accept the Committee's recommendation that all pre-war dependency and special need pensions should be scaled up by an extra 13 per cent., but hard cases would be met partly by a revision of the existing need scale and partly by the Special Grants Committee. The estimated cost of the recommendations made by the Committee, including the continuance of the 20 per cent. bonus was £3,000,000. The estimated cost of the improvements accepted by the Government was £1,900,000. The work of re-assessment woul be carried out as rapidly as possible, and payment woul be made as from April 1st, with arrears from that date. In a detailed statement which the right honourable gentlema circulated later it is announced that the suggeste increases for matrons and nurses are approved. In regar to nurses' dependents the proposals made to the Treasur by the Ministry of Pensions on behalf of the Special Grant Committee had now been sanctioned. Most civilian nurse were already dealt with under the dispensing warrant, but i existing powers were found to be insufficient further consideration would be given to cases of hardship. The Genera Service Section V.A.D. were not nurses, but women engage on ancillary duties. The question whether compensatio could be provided for them would be considered by th War Office.

MONDAY, MARCH 8TH.

Insurance Practitioners' Remuneration.

In reply to a question from Sir PHILIP MAGNUS, th MINISTER OF HEALTH stated the result of the arbitratio in respect of medical men working under the Nationa Insurance Act, which has already been published in th press (see p. 615 of this issue of THE LANCET), adding, "th utmost goodwill exists on both sides and a sincere appreciation of the impartiality and service of the arbitrators." To further question, inquiring the cost to the Exchequer, Dr ADDISON answered that these details would be supplied i connexion with the National Health Insurance Bill shortl to be introduced.

Ireland and the Insurance Bill.

Captain REDMOND asked the Minister of Health if h would state whether the National Health Insurance Amendment Bill was to be applied to Ireland.—Dr. ADDISO replied: The answer is in the affirmative.

Medical Treatment of Children.

Sir CYRIL COBB asked the Minister of Health whethe it had been found in practice that the duty imposed unde Section 1 of the Local Education Authorities (Medical Treatment) Act, 1909, of recovering a charge for treatmen deterred parents from obtaining such treatment for thei children; whether he was aware that in certain areas th Act had become a dead letter; whether, in view of this fac it was the intention to amend or repeal the Act; and, if i was not the intention to amend or repeal the Act at an earl date, what action should be taken by an authority whic was anxious to comply with the section but found that th making of any charge which would justify the cost o collection had a tendency to deter parents from obtaining th necessary treatment for their children.—Dr. ADDISO replied: I have received no representations of the natur referred to in the first part of the question; in any case an amendment affecting the principle of the Act could onl properly be considered in close connexion with the genera question of the organisation of public health services, o which, as I have before indicated, I am not yet in a positio to make any statement.

Medical Examination of Teachers.

Lieutenant-Colonel HURST asked the President of th Board of Education whether he would consider the expediency of relieving teachers who enlisted in the army a A 1 men and received wounds on service from medica examination and from having to pay a fee for such examination, in order to place them at no disadvantage to non-serving teachers in respect of the death gratuity under th School Teachers (Superannuation) Act, 1918.—Mr. H. LEWI (Parliamentary Secretary to the Board of Education) replie My right honourable friend is afraid that he is debarre from adopting the honourable Member's suggestion by th provisions of Section 3 (1) of the Act. Teachers who serve with the forces are not in a position different from that other teachers as regards medical examination and th payment of the fee for such examination.

TUESDAY, MARCH 9TH.

Hospitals for Uncertifiable Mental Cases.

Mr. LAWSON asked the Secretary for War if he would stat how many houses or hospitals were provided under h department for uncertifiable cases of loss of mental balanc occurring among soldiers; where these houses were situate what was the accommodation in each; and whether it wa still the policy of the War Office to retain these cases of nerv strain under military control in so-called war hospita staffed by lunacy officials and lunacy attendants.—M CHURCHILL replied: I assume the honourable Member referring to accommodation for cases of mental disorde Soldiers suffering from nerve strain are not sent to wa (mental) hospitals unless the conditions of the patient constitutes actual mental disorder, but are treated in neurologic hospitals or neurological sections of general hospitals. The is one hospital for cases of mental disorder, viz., Lord Derby's War Hospital at Winwick, Warrington. There are 1000 beds in the hospital and the number of patients at present is 741. It is still the policy to retain such cases in the hospital until they are cured, if this seems likely to occur. Otherwise they are discharged to the care of their friends or to appropriate institutions.

Deafness through Shell Shock.

Mr. HOUSTON asked the Secretary for War whether he could state the number of soldiers who during the war had become totally deaf through shell shock or other causes; and whether institutions would be provided for these men to be taught lip-reading and useful occupations on the lines of St. Dunstan's Hospital for the Blind, so that they might be enabled to earn their livelihood.—Sir L. WORTHINGTON-EVANS replied: The number of the totally deaf cannot be stated, but approximately 30,000 men have been pensioned for deafness of greater or less degree. Medical boards are instructed to recommend a course of tuition in lip-reading where the degree of deafness is such as to render this desirable. Lip-reading classes are held in London at the Ministry's aural clinic (28, Park-crescent, Regent's Park) and at 30 other centres throughout the country.

Sanatoriums for Nerve Strain.

Mr. LAWSON asked the Pensions Minister if he would state how many houses or sanatoriums were provided under his department for ex-soldiers disabled through nerve strain, but whose loss of mental balance was not such as to necessitate certification; and whether he would take steps to secure that, for the cheer and encouragement of such patients, the voluntary houses which were so greatly needed should be kept wholly apart from lunacy administration and unconnected with the Lunacy Board.—Sir L. WORTHINGTON-EVANS replied: There are 12 special institutions with accommodation for nearly 1500 patients available for the treatment of neurasthenic cases. A considerable number of beds are also reserved for such cases at other Ministry hospitals. These institutions are all under the direct control of this Ministry and are unconnected with lunacy administration.

Captain REDMOND: Are there any of these institutions in Ireland?—Sir L. WORTHINGTON-EVANS: As my honourable and gallant friend knows the Irish law on the subject is not the same as here. We have got the Ministry institutions in Ireland, although I think the accommodation is not sufficient.

Protective Health Services.

On a Supplementary Estimate in Committee of Supply of £100 for the Ministry of Health, Dr. ADDISON, Minister of Health, explained to the Committee what he described as the "protective" services which came under the jurisdiction of his department. There was £100 for grants to port and riparian sanitary authorities, which was required for the improvement and extension of the machinery to prevent the importation into this country of any of the diseases which were ravaging other parts of the world. His aim was to erect a protective screen round this country, and he had no doubt that this £100 for which he was asking would in the course of the next few years grow into thousands of pounds. The additional sum required for child welfare was £130,000. They had opened 400 new child welfare centres this year. Midwifery services required great development, but they had during the past year supplied these services for a population of 200,000. They had, however, gone nothing like far enough yet. They had also made progress in the provision of maternity homes, which were badly needed all over the country. During the past year they had established 50 of these homes, and it was the intention of the Department to go on establishing more. The infant mortality rate of last year was the lowest on record. It had now reached 89 per 1000. But it ought to be brought down to 50. The improvement nevertheless was significant. The estimated saving (amounting to £815,090) was not due to bad estimating, but to the fact that on the whole there had been better health among insured persons, which he attributed to better wages and employment. In the main that reflected an improved national health, and if they got an improved service by the aid of the referees he sincerely hoped that they would see a better figure next year. The estimate was agreed to.

Dr. E. Colston Williams, the newly appointed medical officer of health for Glamorgan, recently opened an interesting discussion at a branch meeting of the Society of Medical Officers of Health upon the Working of the Mental Deficiency Act and School Work. He advocated neighbouring authorities combining in order to provide economically the needed institutions. His suggestion received strong support, and a resolution was passed to advise that no premature steps be taken by local authorities before the whole needs of the Principality are ascertained and carefully considered.

Medical News.

MEDICAL RECORDS UNDER NATIONAL HEALTH INSURANCE.—The Minister of Health and the Scottish Board of Health have appointed an Inter-Departmental Committee to consider and advise them as to the form of medical record to be prescribed under the conditions of service for medical practitioners contained in the new Medical Benefit Regulations, having due regard to the clinical purposes (including the remedial value to the patient of maintaining a suitable record of his case), as well as to the administrative and the statistical purposes which such records may be adapted to serve. The Committee consists of the following members:—

Sir Humphry Davy Rolleston, K.C.B., M.D., F.R.C.P. (Chairman),
Emeritus Physician, St. George's Hospital; President, Royal Society of Medicine.
H. B. Brackenbury, M.R.C.S., L.R.C.P.,
Chairman, Insurance Acts Committee.
J. Brownlee, M.D.,
Director of Statistics, Medical Research Committee.
H. G. Dain, M.B.,
Chairman, Birmingham Insurance Committee.
J. R. Drever, M.B.,
Scottish Medical Secretary, British Medical Association.
J. Crauford Dunlop, M.D.,
Superintendent of Statistics, General Register House, Edinburgh.
C. E. S. Flemming, M.R.C.S., L.R.C.P.,
Member, Wiltshire Insurance Committee.
A. Fulton, M.B.,
Vice-Chairman, Nottingham Insurance Committee.
M. Greenwood, M.R.C.S., L.R.C.P.,
Medical Officer (Medical Statistics), Ministry of Health.
R. W. Harris,
Assistant Secretary, Ministry of Health.
H. W. Kaye, M.D.,
Director of Medical Services, Ministry of Pensions.
J. C. McVail, M.D.,
Scottish Board of Health.
H. Meredith Richards, M.D.,
Welsh Board of Health.
T. H. C. Stevenson, C.B.E., M.D.,
Superintendent of Statistics, General Register Office.
S. P. Vivian,
Deputy Registrar-General.
J. Smith Whitaker, M.R.C.S., L.R.C.P.,
Senior Medical Officer, Ministry of Health.

The joint secretaries of the Committee are G. F. McCleary, M.D., and A. E. Joll, of the Ministry of Health, Whitehall, S.W. 1.

Queen Alexandra will unveil the Nurse Cavell Memorial on Wednesday, March 17th.

Dr. J. C. McWalter has been appointed High Sheriff of Dublin.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting, held on March 1st, the following were admitted (after examinations) as Fellows: Dr. Andrew Allison (Ibrox), Dr. Thomas Blackadder Gilchrist (Johannesburg), Dr. John Clark Middleton (Glasgow), and Dr. Robert Cecil Robertson (London). At the same meeting Dr. Thomas Forrest, of Glasgow, presented to the Royal Faculty a case of surgical instruments which had been the property of and were used by the late Lord Lister while he was a surgeon in the Glasgow Royal Infirmary. Dr. A. Freeland Fergus, President, on behalf of the Fellows, accepted the gift with very great pleasure, and stated that it would be placed in the archives of the Faculty.

UNIVERSITY OF WALES: MEDICAL FACULTY.—The suggestion has been made that in future the King Edward VII. Hospital, Cardiff, should become (1) a centre for clinics, venereal, psychiatric, tuberculosis, school, maternity and child welfare, in addition to ordinary out-patient work; and (2) a clearing station, its beds being devoted to urgent and major cases. Another hospital situated outside the town—on a site known as the Rookwood Estate at Llandaff—it is proposed, should accommodate cases passed on to it and also simple and ordinary medical and surgical cases. Much is to be said for this plan, which, it is thought, would appeal to the Welsh Ministry of Health, who desire each general practitioner to have access to a medical institute. Under this scheme the major beds in the centre would be served by the consultants, while the outside hospital would become a medical institute. Further, this plan would allow for almost indefinite expansion in the future, as Rookwood is a beautiful estate comprising some 30 acres excellently placed for fresh air and sunshine.

The Osler Memorial.—A distinguished gathering met at the University Museum, Oxford, on March 6th to decide on the form of a memorial to the late Regius professor of medicine. Three resolutions were proposed and approved. The first, by Sir Clifford Allbutt, that the distinguished services of the late Sir William Osler were deserving of a permanent memorial in Oxford. The second, by Sir William Church, that the most appropriate form of memorial would be an Osler Institute of General Pathology and Preventive Medicine. The third, by the Dean of Christ Church, to appoint a committee and issue an appeal for funds. Professor J. A. Gunn intimated that a provisional committee, consisting of Professor W. H. Welch (Baltimore), Professor Harvey Cushing (Boston), Professor F. Billings (Chicago), President G. R. Butler and Professor Walter B. James (New York), was coöperating in America, and a similar arrangement in Canada was contemplated.

No. 3 Casualty Clearing Station.—With reference to the announcement in The Lancet of Feb. 28th the first reunion dinner will take place at Jules's Hotel, Jermyn-street, London, W., on Saturday, March 20th, at 7.30 P.M.

No. 5 General Hospital, London.—It is proposed to hold a reunion dinner of officers who were attached to No. 5 General Hospital, B.E.F., in London on Saturday, April 10th. Those who wish to attend are asked to write to Dr. G. T. Loughborough, 3, Lexham-gardens, Kensington, W. 8.

London (Royal Free Hospital) School of Medicine for Women: Annual Dinner.—The annual dinner of past and present students and friends of the school, now revived after the war period, is being held to-day (Friday) at the Abercorn Rooms, Liverpool-street, at 7 for 7.30 P.M.

Great Northern Central Hospital.—A successful drawing-room meeting was held by Mrs. Perronet Sells at "Beechwood," Hampstead Lane, Highgate, on March 8th in connexion with the Ladies Association of the Great Northern Hospital. In response to an appeal for new members 38 ladies joined the association, and the sum collected for the hospital among the guests amounted to £32 8*s.* 6*d.*

Chelsea Clinical Society.—A meeting of this society, which has now resumed its activities, will be held on Tuesday, March 16th, in St. George's Hospital Medical School, at 8.30 P.M., when a discussion will be opened by Dr. D. M. Barcroft on "Is Asthma a Disease of the Chest?" Sir Thomas Horder, Dr. Leonard Williams, and Dr. Hernaman Johnson are expected to continue the discussion.

Venereal Prevention in Portsmouth.—After considering a special report on the prevention of venereal diseases drawn up by the medical officer of health, Dr. A. Mearns Fraser, the Portsmouth health and housing committee passed a resolution urging the council—

> "to empower the committee at once to take the necessary steps to disseminate a knowledge of the methods of prevention indicated in the report among the male population of the borough, and to impress upon men their duty to the community in this matter."

Leeds and West Riding Medico-Chirurgical Society.—At the last pathological meeting of this society, held at the Medical School, Leeds, a large number of specimens were exhibited and the following papers read:—Dr. W. MacAdam: The Practical Application of the Newer Methods of Chemical Analysis to Clinical Medicine. An account was given of recent advances in the methods of physiological chemistry, especially in connexion with blood and urine analysis. The lines along which estimation of the sugar content of the blood may assist diagnosis and treatment of the various types of glycosuria were indicated, whilst the additional information thus gained, as compared with that obtained from urinary examinations alone, was discussed. The newer tests for the estimation of renal function were described, an account being given of the findings obtained from estimations of the urea content of the blood, considered along with McLean's urea-concentration test, in various medical and surgical conditions of the kidneys.—Dr. J. W. McLeod: A Suggested Criterion of Virulence amongst Streptococci. After dealing with the differences of opinion which have arisen as to the relation which hæmolytic power bears to the virulence of streptococci, Dr. McLeod pointed out that experiments on rabbits show that the power of streptococci to produce hæmolytic toxin, when grown on undiluted rabbit serum as a culture medium, is closely related to their virulence for rabbits. Adopting the same criterion with human serum, it has been found that a small number of strains can be distinguished as presumably of high virulence. The two strains which were indicated by this criterion as most virulent both came from cases of acute streptococcal meningitis.

Bideford (Devon) Hospital.—It has been decided to make extensions and improvements at the Bideford Hospital at an estimated cost of £4000. £1300 have already been promised, and the committee thinks that the requisite amount will be raised.

Tavistock (Devon) Hospital.—At the annual meeting of the friends of this institution, held on Feb. 25th, it was decided that all medical practitioners within the area of the Tavistock union should, when possible, attend their own patients when resident in the hospital.

Exeter Dispensary.—The annual meeting of the subscribers to this institution was held on Feb. 25th. The medical report stated that 2213 patients had been treated during the year. It was reported that the charity was having an adverse balance of about £500 every year. Dr. T. R. C. Whipham was elected honorary physician, and Dr. J. S. Steele-Perkins and Dr. G. P. D. Hawker were elected on to the honorary consulting staff.

University of Bristol.—The following candidates have passed the Third Examination for the Diploma in Dental Surgery: Norman Harry Bodenham and Kenneth George Hyland.

Bristol Medical Mission.—At the annual meeting of the subscribers to this institution, held last week, it was reported that during the past year 3596 patients had been treated. The income was £1137 and there remained a favourable balance of £65.

The Voluntary Hospitals of Bristol.—The movement towards union between the voluntary hospitals of Bristol is developing. An apparently authoritative summary in the local press has stated that a council of all the hospitals would be set up on a basis of proportional representation, to include also representatives of the University Council and of the honorary staffs. A financial amalgamation is also proposed. The wishes of past benefactors will in all cases be respected, and the house committees of the several hospitals will continue to act as at present. At the annual meeting of the General Hospital, on March 8th, the chairman of committee, Mr. Herbert M. Baker, said that these proposals were still under discussion by the committee set up to consider the whole situation, and that if they were approved by that committee they would then be referred to each of the hospitals concerned for consideration and report. Mr. George A. Mills, the President of the hospital, spoke in favour of the principle of coöperation between hospitals, and suggested to the Lord Mayor, who was in the chair, the suitability of a fund for extinction of debt, and provision of endowment of the hospitals as a war memorial for Bristol. That indefinite delay in the decision as to amalgamation is undesirable is suggested by a remark of Mr. William Garnett, when presiding at the meeting of the Children's Hospital on March 2nd, to the effect that building schemes for a new out-patient department, a nurses' home, and a block for the treatment of surgical tuberculosis had been postponed pending a settlement of the proposals for amalgamation. It is presumably on account of the impossibility of waiting long for the provision of these and other premises that a time-limit is suggested. Each hospital is to be asked to arrive at a decision on its attitude toward a policy of union before May 31st.

Hospitals and Paying Patients.—"One other need of the future—nay, rather of the immediate present—should be mentioned, and that is provision for the reception of patients able to contribute towards the cost of their treatment." This is an excerpt from the report presented at the annual Court of Governors of the Royal Sussex County Hospital at Brighton on Feb. 25th, and created a discussion tending to show that the governors consider the course a wise one to pursue. No actual resolution was submitted, but Mr. Scrase Dickins said the class they used to regard as the sick poor were now in many respects the most well-to-do of the community, while others who hitherto were in a superior position found it almost impossible to make both ends meet, and in time of sickness were in exceptionally unfortunate circumstances. The poorest were provided for, but there was no provision for the intermediate class, and it was very difficult for the board to decide who should be admitted as patients. Another speaker, in voicing entire sympathy with the suggestion, expressed himself in this way—that there was no "half-way house" for the people of Brighton and Hove. From the annual report it was gathered that the normal number of beds (202) had been increased temporarily to 218 in order to cope with the number of patients, the in-patients numbering 2956. Out-patients totalled 5561, and 4189 casualties were treated. The total income for the year was £23,188 3*s.* 3*d.*, and the expenditure £28,608 11*s.* 2*d.*, leaving a deficit of £5420 7*s.* 11*d.*

The annual general meeting of governors of the Royal Dental Hospital of London, Leicester-square, will be held at the hospital on Thursday, March 25th, at 5 P.M.

Hospital Conditions in Liverpool.—It was recently pointed out in Liverpool that the upkeep of the hospitals must no longer be considered a matter of charitable benevolence, but the duty of all who participate in their benefits. Directly or indirectly every member of the community does participate in these benefits, but a study of available local subscription lists show that only a very small proportion of the beneficiaries lend their aid.

Liverpool Royal Infirmary.—The 171st annual meeting of the governors of the infirmary was held on March 5th. Alderman Crosthwaite, the retiring President, in submitting the annual report, mentioned the fact that in 1846, during the presidency of his father, the remark was made that "the advance in the price of articles of food had added considerably to the expenses of the institution." The same might be said with added force of the present situation. During 1919 the in-patients numbered 4618 and the out-patients 32,138. It was proposed to add an out-patients' clinic to the School of Tropical Medicine, which recorded 35,795 attendances last year, while the massage department in connexion with orthopædics had 41,858. He made a special appeal that all in receipt of higher wages should assist the committee in raising funds for the increased salaries of the nurses, which were now equal to the standard recommended by the College of Nursing. The honorary treasurer, in submitting the accounts, pointed out that but for a timely and anonymous donation of £20,000, received last December, the committee would have been placed in serious financial difficulties. There was still an adverse balance of £4712. Mr. H. Wade Deacon saw hope for the financial future of such institutions in the fact that the British Red Cross and St. John Association had resolved to transfer their money-raising energies from war to peace. The suggestion recently made in London of charging hospital patients 10*s.* weekly for food would require serious consideration before adoption in the provinces. He believed that the usefulness and economy of hospitals could be increased by a system of coördination under which acute cases would not be kept in a fully equipped hospital nearly so long after operations as at present, but would soon be removed to a supplemental hospital and thence to a convalescent home if necessary. The report and accounts were adopted, and Dr. Richard Caton, whose association with the infirmary dates from 1886, was elected President.

Royal Southern Hospital.—Under the presidency of the Lord Mayor the annual meeting of this institution was held on March 8th. The seventy-eighth annual report for 1919 showed the number of in-patients to have been 2340, as compared with 2176 in 1918, while the out-patients numbered 15,880 with 70,593 attendances, as compared with 14,905 and 61,213 respectively. All the special departments have been fully utilised and the attendances have increased considerably. In the venereal diseases department the number of in-patients treated during the year was: males 66, females 140. New V.D. out-patients numbered: males 305, females 115, and the total attendances were 1229 males and 940 females. The ordinary expenditure amounted to £29,952, an increase of £3033. The ordinary income fell far short of the needs, but during the year a large amount of extraordinary income amounting to £20,707, of which £13,335 was due to legacies and £3550 to special donations, had come to hand and had relieved the financial strain. A debt of £4488 is still owing to the bank and other creditors. With a view to shortening the hours of duty of the nursing staff the committee has decided to extend the nurses' home to give accommodation to 21 additional nurses. The new building, costing approximately £8500, is now approaching completion. The salaries of the nurses have also been revised and raised to a standard equal to the average paid throughout the country. Together with its annual report the committee is issuing a special appeal which embodies many interesting facts. Whereas in 1910 the ordinary income was £9918, and the ordinary expenditure £12,462, the income in 1919 (less the sum paid by Government in respect of the treatment of wounded and disabled soldiers and sailors) was £14,026, and the expenditure £29,952. Although the cost of commodities, maintenance, and so forth has risen by £17,489, the additional amount subscribed towards this increase has been only £4107. The committee is desirous of bringing these facts home to every wage-earner and employer. The £46,000 raised by the Lord Mayor's appeal in Liverpool compares very unfavourably with the amount raised in other cities in response to similar appeals. Cardiff has raised close on £95,000, and Leeds, by its employers' contributory scheme, is anticipating an additional £25,000 per annum for hospital maintenance. The names of the makers of war fortunes find their way but slowly into the subscription lists, and the working man, although his wages have increased, has not proportionately increased his donations.

National Hospital for the Paralysed and Epileptic, Queen-square.—The annual general meeting of governors will be held at the hospital on Tuesday, March 23rd, at 4.30 P.M.

Plague on a Japanese Liner.—The Ministry of Health announces that the case of plague occurring on the s.s. *Alps Maru* in the Port of London, announced on Feb. 19th, was followed by a further fatal case among the crew whilst the vessel was in the port. The patient was removed to the Port Sanitary Authority's isolation hospital on March 4th, and died there the next day. The portion of the cargo destined for London was discharged into lighters and barges, and the necessary precautions are being taken concerning it. The ship was disinfected as far as practicable, but the holds which still contained cargo could not be dealt with. The vessel left the Port of London on March 6th.

The People's League of Health.—In connexion with the league the Lord Mayor of London will preside at a meeting of provincial mayors to be held at the Mansion House on May 11th, when members of the medical council of the league will urge on all the boroughs and counties the duty to take up the task of raising the general health standard and lessening the deplorable mortality from preventable disease.

Influenza in Zurich.—A sharp epidemic of influenza occurred in Zurich (population 210,000) in February, the total number of cases medically reported between Jan. 18th and Feb. 28th being 11,864. Probably an equal number remained unreported; 2210 of the notifications referred to children. The deaths numbered 166, mostly ascribed to pneumonia. An epidemic of meningitis lethargica coincided with that of influenza: 51 cases with 18 deaths, a high case-mortality. The epidemic is now (March 7th) rapidly declining.

Financial Condition of Norfolk Hospitals.—There is a distressing monotony about the annual reports of many Norfolk hospitals now being published. In all cases the expenses have vastly increased, with no corresponding increase of subscriptions and donations. The artisan classes who have made so much money during the war do not seem yet to have recognised their obligations towards the hospitals, and the ordinary subscribers have not, as a rule, increased their contributions to make up for the falling value of money. The Jenny Lind Hospital for Children in Norwich has to face this year a deficit of £2054 15*s.* 4*d.* The committee is also asking for a sum of about £6000 to provide further accommodation for its nursing staff, which will have to be increased owing to the curtailment of working hours. During 1919 the number of patients admitted to this hospital was 868, the daily average number of beds occupied was 54·8, and the number of operations 443. In the out-patient department the number of new patients was 2464, the number of attendances 13,461, and the number of operations 355. An X ray and electrical massage department has been opened within the last few months and Dr. A. J. Cleveland has been appointed physician in charge.

Another Norfolk hospital appealing for funds is the West Norfolk and Lynn Hospital, King's Lynn. Last year the expenditure exceeded the receipts by about £1200, and the board pointed out that, as each in-patient cost as a rule £9, the present rate of subscription was hopelessly inadequate; an appeal was made to all residents in the area served by the hospital to increase their contributions in proportion to the increased cost of commodities and of all forms of labour. The number of in-patients treated in the hospital in 1919 was 575; out-patients, 266; dental cases, 162; casualties, 763; operations, 439; and deaths, 48. There was a considerable increase in the number of in-patients and operations over the preceding year, but a diminished number of out-patients. The hospital board considered that to make the hospital efficient and up to date three distinct improvements were absolutely necessary—viz.: (1) a nurses' home; (2) an out-patient department equipped on modern lines; and (3) a self-contained laundry. It was resolved, at a special meeting of the governors held on May 13th, 1919, that a salaried surgical specialist should be appointed to be responsible for all the surgical work of the hospital. This appointment was offered to Mr. C. E. S. Jackson, who took up his new duties on Oct. 1st. Mr. C. T. M. Plowright was appointed honorary consulting surgeon, and Dr. J. R. Kingdon and Dr. W. B. Wedgwood continued to act as honorary physicians and Mr. S. A. T. Coxon as honorary dental surgeon. At the request of the Ministry of Pensions a clinic was organised in September for the treatment of men partially disabled in the war, and Miss Partridge was appointed masseuse. Forty men in all had received and benefited much by this treatment, and it was now found necessary to employ a second masseuse.

Appointments.

CARLILL, H., M.D., B.Ch. Cantab., has been appointed Physician to the Westminster Hospital.

FENTON, J., M.D., D.P.H., Medical Officer of Health for the Royal Borough of Kensington.

Certifying Surgeons under the Factory and Workshop Acts: ANGLIM, W. J., L.R.C.P. & S. Irel. (Duncannon); FOUNTAIN, E. D., M.R.C.S., L.R.C.P. Lond. (Great Wakering); COX, E. H., M.B., Ch.B. Vict. (Rochdale); MCKENNA, J. H., L.A.H. Dub. (Ballylynan); ROBERTSON, J. D. (Kidwelly); SHEEDY, T. (Aughrim).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Asst. H.S. £200.

Barnsley, Beckett Hospital.—Jun. H.S. £150.

Bath, Royal Mineral Water Hospital.—Res. M.O. £250.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75 respectively.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170 respectively.

Birmingham, City Sanatorium, Yardley-road, Small Heath.—Third Asst. Res. M.O. £350.

Birmingham, Monyhull Colony for Epileptics and Feeble-minded.—Res. M.O. £650.

Blackburn County Borough.—M.O.H. £1000.

Blackburn and East Lancashire Royal Infirmary.—Jun. H.S. £250.

Bolingbroke Hospital, Wandsworth Common, S.W.—P. £50.

Bradford Children's Hospital.—H.S. £180.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

British Guiana.—Asst. M.O. £400.

Cancer Hospital, Fulham-road, S.W.—Hon. Dent. S. 25 gs. Also Two H.S.'s. £150 each.

Carlisle, Cumberland Infirmary.—Res. M.O. £200.

Central London Ophthalmic Hospital, Gray's Inn-road, W.C.—H.S. £50.

Chelmsford, Administrative County of Essex.—Tuberc. O. £500.

Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—H.S. £120.

Coventry Education Committee.—Sch. Dent. £400.

Denbigh County.—Sch. Med. Insp. £600

Derby, Derbyshire Royal Infirmary.—H.S. £200.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Cas. O. £120.

Evelina Hospital for Children, Southwark, S.E.—H.S. £160.

Exeter, Royal Devon and Exeter Hospital.—Hon. Surg. Regis. and Surg. Anæsthetists.

Gateshead Dispensary.—Asst. M.O.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.

Great Northern Central Hospital, Holloway, N.—H.P. £150.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O. £150. Also Hon. Dent. S.

Holborn Union Infirmary, Archway-road, N.—Sec. Asst. M.O. £250,

Hospital for Sick Children, Great Ormond-street, London, W.C.—Director of the Massage and Physical Exercises Department. Also Res. Med. Supt. £200. Also Asst. Cas. M.O., H.P., and H.S. £50 each.

Hospital for Women, Soho-square, W.—Hon. M.O.

Huddersfield Royal Infirmary.—Asst. H.S. £150.

Hull Education Committee.—Sch. Dent. £400.

Kesteven County Council.—Female Asst. Sch. M.O. and M.O.H. £450.

Kingston Infirmary.—Asst. Res. M.O. £300.

King Edward's Memorial Hospital, Ealing.—Res. H.S. £200.

Leeds City Tuberculosis Hospital, Killingbeck.—Med. Supt. £500.

Leeds Public Dispensary.—Res. M.O. £200.

Liverpool, City Infectious Hospitals.—Asst. Res. M.O. £250.

Liverpool Royal Infirmary, Medical School.—H.P.'s and H.S.'s. £60.

Liverpool, Stanley Hospital.—Two H.S.'s. £150.

Liverpool University, Faculty of Medicine.—Lecturer in Histology and Assoc. Prof. in Cytology.

Macclesfield County Asylum.—Asst. M.O. £350.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.

Maidstone, Kent Education Committee.—Sch. M. Inspec. £492.

Manchester, County Asylum, Prestwich.—Asst. M.O. £450.

Manchester, Crumpsall Institution and Infirmary, Crescent-road.—Res. Asst. M.O. £300.

Manchester, St. Mary's Hospitals for Women and Children.—H.S. for Whitworth Park Hospital. £100.

Metropolitan Hospital, Kingsland-road, E.—Visiting Anæsth. 25 gs.

Middlesbrough Education Committee.—Asst. Sch. M.O. £450.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.

Miller General Hospital for South-East London, Greenwich, S.E.—M.O. for X ray Dept. H.P. and Registrar. £100. Also Hon. S.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Out-patient M.O. £90.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.

Newcastle-upon-Tyne Dispensary.—Two Hon. S.'s and One Hon. P.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon Asst. to Ophthal. Dept.

Northampton General Hospital.—H.S. £150.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Oldham County Borough.—Asst. M.O. £500.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Portpatrick.—M.O. and Public Vaccinator. £80.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Dist. Res. M.O. £80.

Queen Mary's Hospital for East End, Stratford, E.—H.P. Also Anæsth.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Two Asst. S.'s Also H.P. £100.

Reading County Borough.—M.O.H. £800.

Reading, Royal Berkshire Hospital.—H.P. and Second H.S. £20 each.

Richmond Royal Hospital, Surrey.—Hon. M.O.

Royal Dental Hospital of London, Leicester-square, W.—Asst Dent. S.

Royal Free Hospital, Gray's Inn-road, W.C.—Res. Obstet. Asst. an Med. and Gynæc. Registrars and Asst. Curators of Museum Each £150. Also Clin. Asst. Also Cas. O. £100.

Royal Institute of Public Health, 37, Russell-square, London, W.C.—Sen. Demonstrator of Bacteriology.

Salford Royal Hospital.—Res. S.O. £250. H.S. £150.

Salford Union Infirmary.—Sen. Res. Asst. M.O., Sec. Res. Asst M.O. £350 and £300.

Scarborough Hospital and Dispensary.—Two H.S.'s £150.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—Aural H.S. and Res. M.O. £150 each Also Hon. Radiologist. £100.

Shrewsbury, Royal Salop Infirmary.—H.S. £250.

Singapore Municipality, Straits Settlement, Infectious Disease Hospital, &c.—Med. Supt. £900. Asst. Health O. £750.

6th London Field Ambulance, 2nd London Division, Territoria Army.—Officers.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200

Stockport Infirmary.—Jun. Res. M.O. £200.

Stoke-upon-Trent Union.—Res. M.O. £600.

Sunderland County Borough.—Asst. M.O.H. and Maternity an Child Welfare M.O. £600.

Tonga Isles, Western Pacific.—M.O. £500.

Turks and Caicos Islands.—M.O. £400.

University of Birmingham, Public Health Department.—Laborator Asst.

University of London.—External Examiners.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Non-res H.S. £100.

Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E.—Asst. Tuberc. O. £500.

THE Chief Inspector of Factories, Home Office, S.W., gives notic of vacancies for Certifying Surgeons under the Factory an Workshop Acts at Currie and at Lynton.

Births, Marriages, and Deaths.

BIRTHS.

HOFFMAN.—On Feb. 29th, at Tatsfield Lodge, Tatsfield, the wife o H. Drummond Hoffman, M.B., B.Sc., of a son.

HUGHES.—On March 2nd, at Eastbridge, Croydon, the wife o Morgan Hughes, M.R.C.S., L.D.S. Eng., of a daughter.

SWANN.—On March 1st, at St. Swithin's, Shortlands, Kent, the wif of M. B. R. Swann, M.A., M.R.C.S., of a son.

DEATHS.

ENGLISH.—On the 3rd March, at 33, Gilston-road, S.W., suddenl of heart failure following bronchitis, Dr. Thomas Johnsto English.

HUNT.—On March 3rd, at Darlington-place, Bath, John Perciva Hunt, Lieutenant-Colonel, R.A.M.C. (retired), M.D., F.R.C.S.I. Barrister-at-Law, aged 75.

LIESCHING.—On March 4th, at Tiverton, Devon, Charles Edwar Liesching, M.R.C.S., L.R.C.P., J.P., aged 57 years.

MILBURN.—On March 3rd, at The Laurels, Kidlington, near Oxfor Frederick Le Févre Milburn, M.R.C.S., L.S.A., aged 77.

MILLARD.—On March 1st, at Cheltenham, William Joseph Kelso Millard, M.D., F.R.C.P.E., M.R.C.S., L.S.A.

SANDERS.—On March 6th, at Willingdon, Horace Sanders, M.R.C.S. L.R.C.P., in his 65th year.

WEST.—On March 2nd, at Wimpole-street, W., Samuel Hatch West M.D., F.R.C.P., in his 72nd year.

WORKMAN.—On March 8th, at Woodside-terrace, Glasgow, after short illness, Charles Workman, M.D., aged 67.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, March 18th.—Papers:—Mr. W. B. Brierley: On a Form of Botrytis Cinerea with Colourless Sclerotia (communicated by Dr. E. J. Russell).—Mr. R. R. Gates: A Preliminary Account of the Meiotic Phenomena in the Pollen Mother Cells and Tapetum of Lettuce (Lactuca Sativa) (communicated by Prof. J. B. Farmer).

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Monday, March 15th.

OCCASIONAL LECTURE: at 5 P.M.

Dr. John Freeman: Toxic Idiopathies: the Relationship between Hay and other Pollen Fevers, Animal Asthmas, Food Idiosyncrasies, Bronchial and Spasmodic Asthmas, &c.

Tuesday, March 16th.

SPECIAL GENERAL MEETING OF FELLOWS: at 5 P.M.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Tuesday, March 16th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—Philip Hamill, Douglas Cow): at 4.30 P.M.

Dr. F. Ransom: Action of Strontium on Frog's Heart.

Dr. E. P. Poulton: A Case of Diabetes Insipidus treated with Pituitrin.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.

A *Laboratory Meeting* will be held at the Bacteriological Department of the London Hospital, E.

Wednesday, March 17th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crookshank): at 5 P.M.

Papers:

Dr. E. T. Withington: The Medical Terms in "Liddell and Scott."

Dr. Comrie: "Michael Scot."

Thursday, March 18th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 5 P.M.

Cases (4.30 P.M.) will be shown by—

Dr. Knowsley Sibley: Xanthoma Diabeticorum.

And others.

Friday, March 19th.

OTOLOGY (Hon. Secretaries—H. Buckland Jones, Lionel Colledge): at 5 P.M.

Cases and Specimens (4.45 P.M.) will be shown by—

Mr. Herbert Tilley, Mr. A. H. Cheatle, Mr. J. F. O'Malley, Dr. Dundas Grant, and others.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 P.M.

Discussion:

On "Radium-therapy and Radio-therapy of Exophthalmic Goitre," to be opened by the President of the Section, Dr. A. E. Barclay.

Paper:

Dr. Sidney Russ: Vision by Ultra-violet Light.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, at the Royal Army Medical College, Grosvenor-road, S.W.

Friday, March 19th.—8 P.M., Laboratory Meeting. Demonstrations:—Sir Stewart Stockman: Rabies. Prof. C. Dobell: The Amœbæ of Man. Colonel L. Cummins: Pathogenic Fungi. Dr. C. M. Wenyon: Development of Malarial Parasites in Mosquitos. Dr. A. C. Stevenson: Trypanosomes outside Blood-vessels. Surg.-Capt. P. W. Bassett-Smith: Scurvy in Animals. Dr. Garrow: The Agglutinometer.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Tuesday, March 16th—5 P.M., Goulstonian Lectures:—Dr. J. L. Birley, C.B.E.: The Principles of Medical Science as Applied to Military Aviation. (Lecture III.)

Thursday.—5 P.M., Lumleian Lectures:—Sir J. Rose Bradford, K.C.M.G., C.B.: The Clinical Experiences of a Physician during the Campaign in France and Flanders 1914-1919. (Lecture I.)

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—

Tuesday, March 16th.—5 P.M., Lecture VIII.

A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—

Wednesday, March 17th.—4.30 P.M., Lecture VIII.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.

A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)

Wednesday, March 17th.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)

Saturday.—10.15 A.M., Lecture X., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, March 19th.—9.15 P.M., Mr. L. V. Cargill: Syphilis of the Eye.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, March 15th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M. In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. R. Wells: Aneurysm.

Thursday.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

Saturday.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, March 18th.—5 P.M., Lecture X.:—Dr. S. V. Pearson: Suggested Reforms in the Campaign against Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, March 16th.—2 P.M., Demonstration:—Mr. E. Gillespie: Tuberculous Disease of Bones and Joints. 4.30 P.M., Lecture:—Dr. J. B. Banister; The Routine Examination of Patients before Labour.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, March 15th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Ward Cases: Dr. Aldren Turner.

Tuesday, March 16th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Tooth: Poliomyelitis.

Wednesday, March 17th.—2 P.M., Dr. Yealland. 3.30 P.M., Dr. Collier: Aphasia and Apraxia. (I.)

Thursday, March 18th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Ward Cases: Dr. S. A. Kinnier Wilson.

Friday, March 19th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Gordon Holmes: Cerebellar Disease. Ataxia. (II).

Saturday, March 20th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Saturday, March 13th.—10 A.M., Dr. A. Saunders: Medical Diseases of Children.

Monday, March 15th.—5 P.M., Mr. D. Armour: Cervical Rib.

Tuesday.—5 P.M., Dr. Pritchard: Some Common Infections.

Wednesday.—5 P.M., Dr. Beddard: Practical Medicine.

Thursday.—5 P.M., Mr. Baldwin: Practical Surgery.

Friday.—5 P.M., Special Lecture:—Prof. Sir Clifford Allbutt: Kinds of Pneumonia.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, March 17th.—4.30 P.M., Dr. C. Wall: Bronchitis and Emphysema.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Tuesday, March 16th.—3 P.M., Prof. A. Keith: British Ethnology: The Invaders of England. (Lecture III.)

Thursday.—3 P.M., Mr. S. Graham: (1) The Spirit of America After the War.

Friday,—9 P.M., Mr. E. McCurdy: Leonardo da Vinci.

Saturday.—3 P.M., Prof. Sir J. J. Thomson, O.M.: Positive Rays. (Lecture V.)

CHADWICK PUBLIC LECTURES, in the Lecture Room, Royal Society of Arts, John-street, Adelphi, W.C.

Monday, March 15th.—5.15 P.M., Lecture:—General Sir John Goodwin, K.C.B., C.M.G., D.S.O.: Military Hygiene in Peace and War. II., Army Hygiene during the Recent War (Application of its Principles to Active Service Conditions). (Illustrated by lantern slides.)

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

Monday, March 15th.—3.30 P.M., Dr. Nutt: X Ray Therapeusis.

Tuesday.—4 P.M., Dr. Hay: Subjective Sight-testing.

Wednesday.—3.30 P.M., Dr. Wilkinson: Mastoid Suppuration.

Thursday.—3.30 P.M., Dr. Skinner: New Growths of Skin.

Friday.—4 P.M., Dr. Hay: Injuries of Cornea

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, March 16th.—4.30 P.M., Mr. P. R. Wrigley: Carcinoma of the Breast.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, March 18th.—4.30 P.M., Lecture:—Mr. Macalpine: Indications for Prostatectomy. (At the Salford Royal Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Sussex County Hospital.

Thursday, March 18th.—4 P.M., Clinical Demonstration.

Notes, Short Comments, and Answers to Correspondents.

MILITARY HYGIENE IN OLDEN TIME.[1]

BY SIR JOHN GOODWIN,
DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

HYGIENE is a science with which every army medical officer is intimately concerned, and I propose in my first lecture to endeavour to trace the history of army hygiene, more especially in war, and to show what an immense bearing hygiene has on the success or failure of an army in the field. The commander of a force naturally views with the gravest concern any depletion from sickness of his effective troops. One sick man does not merely imply the loss of one rifle; it entails the diversion of otherwise useful man-power into the services of hospitalisation and transport. Until quite recent years it has never been sufficiently recognised that a very large proportion of army medical effort should be directed towards the prevention of disease. It might be of interest to you if I reviewed briefly

History and Progress of Army and Civil Hygiene.

Some of the earliest sound and concise rulings for sanitation in an army on active service were recorded in Deuteronomy, which was probably written more than 2500 years ago. Moses insisted above all things that the camps must be kept clean. He gives detailed sanitary rules to be observed, especially regarding the disposal of excreta. In Xenophon's analysis, written 379–371 B.C. we read how silver kettles were carried with the army to provide boiled water for drinking purposes. Xenophon also, in describing the retreat of the Greeks, tells us that they were very liable to blindness—doubtless snow blindness—and also describes the mortification of the extremities from snow and cold. Pliny describes the disease which afflicted the Roman army in Germany and—a very interesting point—mentions how the Romans constantly shifted their camps in order to combat the evil; it is also interesting to read that Alexander the Great's main principle in the preservation of the health of his army over 2000 years ago was a very frequent change of encamping ground. As regards actual losses from sickness, Plutarch states that Demetrius in his last expedition lost over 8000 men from sickness, while at the siege of Syracuse the Carthaginians were almost destroyed by a pestilence attended with a flux of blood.

In the fourteenth century the "Black Death" was terribly fatal in its effects. Europe is supposed to have suffered losses to the extent of 40 millions and China 13 millions from this disease. 150 years later the "sweating sickness" was carried by Henry VII.'s army throughout this country, and was the cause of an extremely heavy mortality. In the sixteenth and seventeenth centuries several epidemics of plague occurred in England, and this disease is supposed to have been eradicated from London by the great fire in 1666.

Prevention of Disease.

Very little was, however, written as to the prevention of disease, and Sir John Pringle, in 1768, stated that when he joined the army there was little, if any, literature on the subject. The same writer, in describing the terrible outbreaks of dysentery in our army in Flanders in the years 1742–1745, stated that the disease usually supervened in the autumn, and was due, in his opinion, to the advent of the colder weather at night. He remarks the fact, as if it were a curious coincidence, that the health of the troops appeared immediately to improve when they were removed to a fresh area, and he hazards the opinion that possibly the foul straw and the privies may have been contributory causes. The chief remedies, he states, were the lancet and blisters.

Amongst all this chaff, this groping in the dark, we come across gleams of light, occasional grains of sound advice. The following sentence, written of the army more than 150 years ago, holds equally good to-day. "The preservatives from diseases are not to depend on medicines, but upon such orders as, at the same time that they do not appear unreasonable to him, the soldier shall be obliged to obey." Towards the close of the eighteenth century we begin to obtain something in the nature of figures regarding sickness of armies in the field. In 1792 the allied Austrian and Russian armies during one month, without any considerable fighting, lost 25,000 men, or more than one-fourth of their number, every village being filled with dead and dying. Sir John Pringle mentions, apparently as one of the advantages of a military life in the early part of last century, that "the soldier, in time of war, by the smallness of his pay, is secured against excess in eating, the most common error in diet."

Many army reforms were brought about by Sir James McGrigor, who became Director-General of the army in 1814. It was due to him that each soldier in barracks was provided with a separate bed; indeed, it was only a very short time before that an army medical officer, Dr. Robert Jackson, who must evidently have been a most troublesome fellow, introduced a system of dieting the sick while in hospital, and also insisted that sick soldiers should have separate beds instead of having to lie two or three together, as had formerly been the custom.

Mortality from Sickness in Various Campaigns.

Probably one of our most disastrous campaigns, from a hygienic point of view, was the Walcheren Expedition of 1809, where our mortality from disease amounted to 346·9 per 1000 of strength of troops. We have all read of the trials and hardships of the troops in the Crimean War in 1854 in which the mortality from disease amounted to 230 per 1000 of the strength. In the Afghanistan War of 1878–1880 the mortality was 93·7 per 1000, showing some improvement. Bad as these figures are, those of other nations are even more unfavourable; for example, in the French Soudanese Campaign of 1888–1889 the mortality from disease amounted to 280 per 1000, worse figures than those of our own army in the Crimean Campaign 35 years previously.

I think that perhaps the most striking example of the havoc which may be wrought by disease in an army in the field is that furnished by the French army in Madagascar in 1895, where the mortality from disease amounted to 300 per 1000 of strength. In this campaign there were killed by the enemy 7 and wounded 94, while the deaths from disease numbered 5600. The evils in the past were mainly due to lack of coördination and of real knowledge on which concerted action could be based. Nevertheless, advances were made, and as an example of the steady progressive improvement in the health conditions of the soldier, and the increased success in disease prevention, it is interesting to note that in India during the five years 1878–1882 the following were our sickness and mortality rates per 1000 of men serving among European troops. These figures may be compared with those for 1912:—

	1878–1882.	*1912.*
Constantly sick	68·1	28·8
Deaths	20·5	4·6
Malaria	559	82
Dysentery...	42·8	5·2
Cholera	5·7	0·3
	(4·2 deaths) ...	(0·2 deaths)

Certain excellent decisions which bore good results had been arrived at more or less empirically—for example, the spacing out of men in barracks recommended by the Herbert Commission of 1858, which in itself did so much to lower the incidence of tuberculosis and other diseases in the army.

Up to and including the Crimean War the medical service of the army had no fixed establishment of personnel. Indeed during that war some 240 enlisted men represented the total medical department in the field exclusive of medical officers. So impressed with the evils of this system were the committee who furnished the medical report of the Crimean War that they found it necessary to comment as follows:—

> "Without a trained hospital corps under the orders of the (medical) department superintending medical officers must be inoperative for all good; for without this aid they must see their best efforts lamentably fail to secure to the soldier all that is requisite to promote his comfort and bring about his recovery."

In addition, however, to the lack of personnel, conditions in the Crimea were largely due to lack of precise knowledge of the ætiology of the diseases which ravaged the troops. Two requirements were therefore necessary for the good of the army—namely, an organised personnel and increased knowledge. Up till the end of the century efforts were made to provide both with very fair success, so that at the time of the South African War the army was provided with an organised medical service having its own personnel, trained for its proper purposes and staffed by officers equipped with recent medical knowledge. The recommendations of the Herbert Report after the Crimea, indeed, went very much further, and the suggestions of that one illuminating document embraced all those improvements which were not fully provided until the lapse of over half a century. That report is noteworthy as suggesting an advisory board on hygiene as well as the early Army Medical School at Netley, and stands to-day as a lasting tribute to the foresight of its authors.

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[1] Being an abstract of the first of three Chadwick lectures on Military Hygiene in Peace and War, delivered on March 8th, 1920.

CIRCULARS TO DOCTORS.

WE gather from the catalogue of the Agence de Publicité Denis Bodden in Brussels (82, Bd. Maurice Lemonnier) that there are 4045 doctors in Belgium, 2160 in Holland, 90 in Luxembourg, and 2334 in Switzerland. At all events, this firm is prepared to supply gummed addresses to these numbers for circulars, catalogues, and the like, at a cost of fr. 24, 15, 1 and 15 respectively.

DIPHTHERIA ANTITOXIN IN INFLUENZA.

WE have received from Dr. Robert Nairn, of Hastings, N.Z., a table of 41 cases (34 recoveries) of influenza treated with diphtheria antitoxin (4000 units). Temperature charts of many of the cases, of which 20 were complicated by pneumonia, show that a definite reaction, with rise of temperature, accompanied the antitoxin, followed by a fall about 48 hours after the injection. Dr. Nairn says that the subjective improvement was as marked as in cases of diphtheria. In a previous letter (THE LANCET, 1919, i., 635) Dr. Nairn suggested an ætiological resemblance between diphtheria and influenza. The beneficial effects of diphtheria antitoxin do not necessarily confirm this supposition, since normal horse serum has been found to possess markedly immunising properties.

CAUSES OF DEATH IN WEST AFRICA.

AMONG the vital statistics issued by the Colonial Office is an interesting record of the causes of death from disease among non-native officials in the group of West African colonies which includes Gambia, Sierra Leone, Gold Coast, and Nigeria. The causes of death during the year 1918 were: Blackwater fever, 6; heart disease, 2; dysentery, 1; carcinoma of stomach and liver, 1; gastric hæmorrhage and subphrenic abscess, 1; alcoholism, 1; influenza epidemic, 27—i.e., influenza, 13; influenza and pneumonia, 8; influenza and congestion of the lungs, 1; influenza and malaria, 1; pneumonia, 3; pneumonia and malaria, 1. The absence of deaths from malaria, except in conjunction with influenza, and from yellow fever, is an encouraging feature, and had it not been for the influenza epidemic the death-rate in 1918 would have been the lowest on record.

THE EFFECT OF AMERICAN RELIEF ON THE MORTALITY-CURVE OF CHILDREN IN VIENNA.

WE have received from Mr. Walter Lyman Brown, Director for Europe of the American Relief Administration, European Children's Fund, a chart showing the comparative mortality of children in Vienna, between the ages of 6 and 15, for the years 1917, 1918, and 1919. The chart, which does not readily lend itself to reproduction, has been studied by Professor von Pirquet, general Austrian commissioner of the Amerikanische Kinder-Hilfs-Aktion, and Dr. Mayerhofer, his chief assistant, who have made the following statement:—

> "So far as it is permissible to draw conclusions from statistical figures and the curves derived therefrom, we are justified in deducing from the material before us that the American feeding work has considerably influenced the death-rate of children. We see a drop of the death-rate from 158 in June, 1919, to 73 in November, a drop which is not evident to such an extent during the years of 1917 and 1918.
>
> The course of the curve showing the mortality which could have been expected without the feeding work is indicated by the blue line. We must emphasise in justice to the feeding work that at the end of 1919 the death-rate of the children between the ages of 6 and 15 years has been continuously the lowest since 1917. This is so much the more remarkable, as in the autumn and winter of 1919 a heavy epidemic of measles and a beginning influenza epidemic appeared."

We agree that a study of the chart bears out this deduction, which will be an encouragement to those who are engaged in this labour of love to redouble their efforts.

POLICE-AIDED SCHEME FOR CLOTHING DESTITUTE CHILDREN.

Sir William Gentle, who has just resigned the office of Chief Constable of Brighton, will be remembered as the originator, in February, 1904, of the Police-aided Scheme for Clothing Destitute Children. King Edward VII. once visited the police station at Brighton and saw the scheme in actual working. Little was done during the war period, but it may be hoped that Sir William Gentle, before finally relinquishing his office, will revive the work. During the winter months the police frequently observe children in the streets insufficiently clothed and consequently exposed to danger and suffering. The constable reports names and addresses to the superintendent of his division, who directs inquiries to be made. The homes of the children are then visited by the police, and if the fathers are found to be earning sufficient they have to provide adequate clothing for their children or are prosecuted under the Prevention of Cruelty to Children Act. If it be found that the parents are out of employment, and consequently unable to provide suitable clothing, garments are provided. There is no fear of the garments finding their way to the pawnshops, as each article bears a particular mark, and that mark is placed in the possession of the pawnbroker. Girls are also assisted so as to be able to enter domestic service. The war has changed the conditions in many ways, but there is no doubt that in Brighton, and in the other towns which copied the example, there is still scope for a continuance of this humanitarian work which changed the common conception of the policeman so that he came to be looked upon as a friend rather than as an enemy.

THE REDUCTION OF THE BREAD SUBSIDY.

WE live in an age of big figures, and the announcement of the Government of their intention to reduce the bread subsidy in the coming financial year by 45 millions gives some idea how the nation was helped to get its bread at relatively modest prices through the war. It is stated, in fact, that if no change were made the cost to the Exchequer on present estimates would be approximately 90 millions. The price of the loaf after April 12th will be in the neighbourhood of 1*s.* as against 9½*d.* at the present time. The average rate of extraction of flour required to be obtained from the ground wheat is also to be raised from 77 to 80 per cent. Experience has shown that the increased extraction of flour in the past did not lead to disturbance of health, and there is no suggestion to make a loaf of anything but wheat. At certain times through the war the extraction exceeded 90 per cent., and the admixture with other cereals and flour was authorised. Our bread is to remain a pure wheat product.

MINISTRY OF PENSIONS: REGIONAL COMMISSIONERS.

WE have published from time to time (THE LANCET, 1919, ii., 119 and 813) the names of the regional commissioners of the Ministry of Pensions and the boundaries of the areas over which they hold jurisdiction. To these commissioners has now been entrusted the responsibility of obtaining for disabled officers and nurses the medical or surgical treatment to which they are entitled. A discharged officer or nurse who is claiming retired pay or pension on the ground of disability attributable to or aggravated by service and who is in need of treatment should apply to the commissioner of medical services at the regional office. The revised list of the regions, with their respective commissioners and county boundaries (C.B.) is as follows:—

1. Scotland: Dr. G. H. R. Gibson, D.S.O., Adelphi Hotel, Cockburn-street, Edinburgh. C.B., all Scotland.
2. Northern: Dr. Hugh Richardson, D.S.O., 14, Clayton-street West, Newcastle-on-Tyne. C.B., Northumberland, Durham, Cumberland.
3. North-Western: Dr. A. H. Williams, 13, Piccadilly, Manchester. C.B., Lancashire, Cheshire, Westmorland, Isle of Man.
4. Yorkshire: Dr. C. H. Milburn, O.B.E., 7, Boar-lane, Leeds. C.B., Yorkshire.
5. Wales: Dr. Bickerton Edwards, O.B.E., Angel Building, Cardiff. C.B., All Wales and Monmouthshire.
6. West Midlands: Bethany Buildings, Loveday-street, Birmingham. C.B., Staffordshire, Shropshire, Warwickshire, Worcestershire, Herefordshire.
7. East Midlands: Colonel A. B. Ward, D.S.O., Black's Building, Stoney-street, Nottingham. C.B., Leicestershire, Lincolnshire, Nottinghamshire, Derbyshire, Northamptonshire, Rutlandshire.
8. South-Western: Dr. James Young, Clifton Down Buildings, Bristol. C.B., Gloucestershire, Wiltshire, Dorsetshire, Somersetshire, Devonshire, Cornwall.
9. Eastern: Dr. T. Basil Rhodes, 80, Westbourne-terrace, W. 2. C.B., Norfolk, Suffolk, Cambridgeshire, Huntingdonshire, Essex, Bedfordshire, Hertfordshire, Buckinghamshire, Oxfordshire, Berkshire.
10. London: Dr. H. J. Neilson, C.B.E., Crown Agents' Annexe, Westminster House, Millbank, S.W. 1. C.B., Metropolitan area.
11. South-Eastern: Dr. R. McLeod Veitch, 48, Grosvenor-gardens, S.W. 1. C.B., Kent, Surrey, Sussex, Hampshire, Isle of Wight, Channel Islands.
12. Ulster: Dr. A. E. Knight, D.S.O., M.C., Grand Central Hotel, Belfast. C.B., Ulster.
13. Ireland, South: Dr. D. A. Carruthers, Dunlop House, Abbey-street, Dublin. C.B., Munster, Leinster, Connaught.

Communications with regard to retired pay or pension should be addressed to the Officers' Awards Branch, Cromwell House Annexe, Millbank, London, S.W. 1.

THE MAGNET AUTO-STERILISER.

THE General Electric Co., Ltd., of 67, Queen Victoria-street, London, E.C., have recently introduced a steriliser for surgical instruments which should prove convenient in practice. It is described as being made on the "magnet" principle—i.e., with easily replaceable heating element (immersion type)—the apparatus including a heat-insulated handle for raising the lid besides a perforated self-draining tray, which is automatically lifted out of the liquid by lever hinges when the lid is raised. The liquid is rapidly brought to the boiling point and the heating elements can be supplied adjusted to varying voltage main supplies. The modus operandi is to fill the containing vessel with water, so that the immersion heater is well covered and the instrument tray properly immersed. The current is then switched on, and as soon as sterilisation is assured the lid is raised by means of the heat-insulated handle. The instrument tray is thus lifted out of the water, and the instruments dry rapidly by residual heat. Condensed water formed on the lid is caught in a trough receptacle and returned to the water-container when putting back the lid to its position. It seems to us that it would be an advantage to use distilled water in the steriliser, as then no film of mineral salts would be left on the instruments when automatically drying.

MEDICAL AFFAIRS IN BIHAR AND ORISSA, 1918.

THE population of Bihar and Orissa, including Chota Nagpur, at the census of 1911, was 34,489,846, and on this basis the ratios for births, deaths, &c., have been calculated. The birth-rate was 37·5 and the death-rate 56·7 per 1000, as compared with 40·4 and 31·5, the corresponding ratios for the preceding quinquennium; the decrease in the birth-rate was general in both urban and rural districts, only 4 of which out of the total 21 recorded a higher ratio than in the quinquennium.

This decrease is considered by Dr. S. N. Tiwari, the officiating Sanitary Commissioner, to have been due chiefly to the extensive and virulent epidemic of influenza, and partly also to defective registration and a general low vitality of the population from prevalence of fever and dearness of food during the previous two years. All the other provinces of India showed a similar reduction except Assam. The enormous increase in the death-rate from 35·2 to 56·7—that is, a total of 741,632 more deaths than in the previous year—was due chiefly to influenza; every province in India showed an increase from this cause, and many in a much greater degree.

In Bihar the two divisions of Patna and Chota Nagpur had fever death-rates of 50·3 and 48·7 per 1000, which were respectively 30·7 and 29·2 per 1000 in excess of the quinquennial average, this increase being due to influenza. In the district of Palamau (Chota Nagpur) the fever death-rate was 59·2; the highest fever death-rate for a town was 61·1 per 1000 at Balasore, of which 40·4 per 1000 was due to influenza. Remedial measures in all districts were undertaken by local bodies helped by the Government, but on account of the very rapid spread of the epidemic throughout the province no pathological investigations or preventive measures could be carried out beyond circulating leaflets giving general information about the disease and care of the patient.

In a concluding paragraph of his report Dr. Tiwari admits that "the existing sanitary organisation in the province failed to make any impression in preventing or combating the several epidemics which prevailed during the year," and points out that the responsibility of providing for and looking after sanitation rests with the local bodies who administer the law. The sanitary department, as at present constituted, is mainly an advisory body, and has no powers or funds at its disposal even to disinfect a well. Considerable progress, however, was made during the year 1919 in waterworks, sewerage, and general sanitary improvements, as detailed in the report by Mr. F. C. Temple, C.E., the sanitary engineer to Government.

Hospitals and Dispensaries.

From the report on hospitals and dispensaries in these provinces it appears that a total of 2,894,567 patients were treated in 1918, of whom 39,523 were in-patients. 60·92 per cent. of these latter were cured, 14·93 per cent. were relieved, 13·22 per cent. "discharged otherwise," 7·20 per cent. died, and 3·73 per cent. remained under treatment at the end of the year. The daily average number of in-patients was 1646·9.

It is stated that "cholera gave 22,731 admissions with 315 deaths, against 12,825 and 316 respectively in 1917." These figures give case-mortality ratios of 1·38 and 2·46 per cent. respectively. There must be some error here, as such low ratios seem to be incredible. In cholera epidemics the case-mortality varies considerably, from 30 to 50 per cent., but is never so low as here stated.

Note.—The details for 1918 are given in the tables accompanying the report. 699 cases were treated as in-patients (with 273 deaths) and 15,803 (deaths not stated) as out-patients at the State public, local fund, and private-aided dispensaries; 68 and 457 cases were similarly treated in the State special and railway dispensaries (with 30 deaths among in-patients); 5704 cases were treated (in- and out-patients) at private non-aided dispensaries. Of these 5704 cases 12 only are stated to have died. The returns are obviously incomplete.

Surgical operations.—The record of surgical operations is very satisfactory. The total number of all kinds performed in the State public, local fund, and private-aided dispensaries was 124,889, in 119,413 of which a cure was effected. Colonel G. J. H. Bell, C.I.E., I.M.S., Inspector-General of Hospitals and Dispensaries for the province, alluding to the "provincialisation" of the Patna General Hospital in April, 1918, states that he is in favour of this step being taken for the "sadr" (that is, principal) hospitals at all headquarters of districts on a similar basis to what is being done in the Madras Presidency. The expansion of these hospitals appears to involve more expense than can, in many instances, be met by municipal bodies.

Vaccination.—As regards vaccination in these provinces the total number of operations performed was 972,423, being a decrease of 125.253 compared with the previous year. This is ascribed to the prevalence of influenza, and was general throughout the whole region. 97·52 per cent. of the vaccinations were successful.

The mortality ratios for small-pox during the last five years have been 0·22, 0·42, 0·28, 0·19, and 0·17 per 1000 respectively. Dr. Tiwari considers that the decline in the death-rate is not likely to continue "except in the areas where the Vaccination Act has been made compulsory." This is now the case in all municipal towns; opposition has diminished, and is now shown not so much to vaccination itself as to vaccination of an infant under a year old. He recommends that vaccination be made compulsory throughout the province. With regard to inspection of results there appears to have been some difficulty; "villagers generally resent bringing their children for inspection; the system of thorough inspection of the work done in rural areas has suffered by the spirit of independence pervading villagers, resulting in numbers of children not being produced, even for short distances, for the civil surgeon's personal inspection."

Jail Population.

The year 1918 was remarkable for a very large increase in the jail population of these provinces. In 1917 there had been a daily average of 7182 prisoners, while in 1918 the average was 9199.

There was a great increase in sickness and mortality, much larger than would be warranted by the mere increase in numbers: the admissions to hospital were 13,777, compared with 6679; the average daily number sick was 662·3, compared with 310·1; and the deaths 584, compared with 237 in the previous year. In ratios per 1000 the hospital admissions were 1497, compared with 930; the daily average number sick 71·9, compared with 43·1; and the deaths 63·4, compared with 32·9. In the case of several jails the mortality ratios were excessively high—e.g., Daltonganj (226·2 per 1000), Purulia (199·6), Sambalpur (157·3). It is stated that several jails, especially Purulia, Arrah, Bhagalpur, Puri, and Chapra were badly overcrowded on account of rioting at Arrah at the festival of Bakr-id; also that a large number of prisoners on admission to jail were in a very bad state of health from epidemic influenza and its effects or tuberculosis. Taking the jails as a whole, of the 15,811 convicts discharged during the year from central and district jails, 54·67 per cent. had gained weight and only 19·72 per cent. had lost weight.

Lieutenant-Colonel B. J. Singh, C.I.E., I.M.S., Inspector-General of Prisons, who presents this report, considers it essential that a Juvenile Offenders Act should be passed (as in England), empowering magistrates to give two years' detention in a juvenile jail in lieu of a short term in a criminal jail. This would appear to be a sound recommendation. It is good to learn that the boys now play football.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. H. H. Armstrong, Olney; Prof. J. G. Adami, Liverpool.

B.—Bodleian Library, Oxford, Librarian of; Dr. E. C. Bevers, Oxford; Sir J. Barr, Liverpool; Dr. J. L. Brownlie, Glasgow; Mr. F. W. Brunker, Edinburgh; Mr. R. L. Bland, Lond.; Major S. T. Beggs; Mrs. C. Brereton, Lond.

C.—Dr. A. Cox, Lond.; Child Study Society, Lond.; Chadwick Trust, Lond., Sec. of; Dr. Z. Cope, Lond.; Dr. C. Coombs, Bristol; Mr. F. R. Cave, Bath; Chelsea Clinical Society, Sec. of; Dr. E. L. Collis, Cardiff; Prof. A. R. Cushny, Edinburgh; Miss H. Cashmore, Lond.

D.—Mr. R. Donald, Lond.; Dr. M. Dobbs, Lond.; Dr. H. Davis, Lond.; Mr. H. Dickinson, Lond.

E.—Mr. D. L. Eadie, Edinburgh.

F.—Friends' Emergency and War Victims Relief Committee, Lond.; Mr. W. R. Fairbrother, Lond.

G.—Dr. F. B. Gurd, Montreal; Dr. D. Guthrie, Edinburgh; Mr. E. W. Hey Groves, Clifton; Dr. W. E. Gye, Lond.; Surg.-Lieut. H. H. Gellert, R.N.; Dr. G. Greenwood, Lond.; General Infirmary, Leeds, Lady Almoner of; Great Northern Central Hospital, Lond., Sec. of.

H.—Rev. B. M. Hancock, Southampton; Prof. W. Hall, Bristol; Hunterian Society, Lond.; Mr. F. Hastings, Lond.; Dr. F. H. Humphris, Lond.; Dr. G. R. Hall, Glastonbury; Dr. J. Haddon, Denholm; Sir T. Horder, Lond.; Mr. T. G. W. Henslow, Lond.

J.—Dr. G. Jessel, Leigh; Mr. H. W. Jackson, Lond.

K.—King's College Hospital Medical School, Lond., Sec. of; Dr. Agnes Keen, Lond.

L.—London Warming and Ventilating Co.; London County Council, Education Officer; London Chamber of Commerce, President of; London and Counties Medical Protection Society, General Sec. of; Dr. H. Lyon-Smith, Lond.; Liberal Anti-Nationalisation Committee, Lond., Hon. Sec. of; Dr. E. B. Leech, Manchester; Dr. T. D. Lister, Lond.; Dr. G. T. Loughborough, Lond.

M.—Sir F. Mott, Lond.; Dr. R. W. McKenna, Liverpool; Mental After-Care Association, Lond., Sec. of; Ministry of Pensions, Lond.; Capt. C. G. Moor, Lond.; Dr. W. Makeig-Jones, Torquay; Dr. L. Murray, Liverpool; Mr. G. Mayall, Bolton; Ministry of Health, Lond.

N.—The National Party, Lond.; Dr. L. Nicholls, Colombo.

O.—Dr. J. A. Ormerod, Lond.

P.—People's League of Health, Lond.; Sir A. Pearson, Lond.; Dr. G. Patry, Geneva; Prof. L. M. Pautrier, Strasbourg; Dr. H. R. Prentice, Lond.

R.—Royal Institution of Great Britain, Lond.; Royal College of Surgeons of Edinburgh, Clerk of; Mr. E. Roudolphi, Lond.; Registrar-General, Edinburgh; Dr. J. Reynolds, Lond.; Dr. B. Robinson, New York; Royal Faculty of Physicians and Surgeons, Glasgow, Sec. of; Royal Society, Lond., Asst. Sec. of; Royal Institute of Public Health, Lond., Sec. of.

S.—Mr. B. E. Spear, Lond.; Dr. H. Sutherland, Lond.; Dr. M. C. Stopes, Leatherhead; Société des Sciences Médicales et Biologiques de Montpellier; Mr. H. K. Smyth, Umtali, Rhodesia; Dr. E. F. Skinner, Sheffield; Sir C. Symonds, Lond.; Mr. C. St. Aubyn-Farrer, Lond.; Major A. D. Stirling, R.A.M.C.; Society of Tropical Medicine and Hygiene, Lond.

T.—Tella Camera Co., Lond.; Mr. C. E. Thomson, Lond.

U—University of London Military Education Committee, Hon. Treasurer of; University of Bristol, Registrar of; University of California College of Agriculture, Berkeley, Director of.

V.—Village Centres Council, Lond.

W.—Dr. J. D. Wynne, Norwich; Mr. H. M. Woodcock, Lond.; Dr. C. H. Whiteford, Plymouth; World Trade Club, San Francisco; West London Post-Graduate College; Dr. D. White, Lond.; Dr. G. Ward, Sevenoaks; Dr. B. Whitehouse, Birmingham.

Z.—Dr. T. Zangger, Zurich.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

A Presidential Address
ON
HUNTER, GASKELL, AND THE EVOLUTION OF THE NERVOUS SYSTEM.

Delivered before the Hunterian Society on Feb. 25th, 1920,

By W. LANGDON BROWN, M.A., M.D. Cantab.,
F.R.C.P. Lond.,

Gentlemen,—In his fascinating and inspiring centenary address Professor Arthur Keith laid stress on three salient features of Hunter's researches. Their importance was not fully recognised by those who came immediately after him; he was not concerned in the practical bearing of the investigations he undertook, and they ranged over the whole of the biological sciences, because each discovery in its turn raised so many new questions.

In the discussion that followed we agreed that all these characteristics were exemplified in Gaskell as in Hunter. Gaskell was one of the greatest minds of the nineteenth century, as Hunter was one of the greatest in the eighteenth. Yet, although he has been dead but a few years, I note a tendency in certain quarters to belittle the value of Gaskell's contributions to science. The reaction will come, as it came in Hunter's case, and justice will be done some day. Again, Gaskell was not in the least concerned with the practical bearing of his researches, but he was indefatigable in the search for truth, and as Starling says:—

> "In physiology, as in all other sciences, no discovery is useless, no curiosity misplaced or too ambitious, and we may be sure that every advance in the quest of pure knowledge will sooner or later play its part in the service of man."

This is abundantly true of Gaskell's work. Thus, in regard to his investigations on the heart, Sir James Mackenzie once said to me: "The further I go the more clearly I realise that Gaskell was the man." The clinical importance of his work on the sympathetic nervous system was, perhaps, appreciated in America sooner than in this country, but practical problems arising from the war have now forced them upon our notice. The ever-widening circles of interest which arise from investigation of a single problem is also clearly seen in Gaskell's work. He started by researching on the variation of blood-flow through a limb produced by muscular action. This led him to study the innervation of the blood-vessels and the nature of cardiac rhythm. This, in its turn, led him to investigate the plan of the sympathetic nervous system, which, he found, formed part of a larger system of involuntary nerves with visceral functions. Thereby he was able to determine a segmental arrangement of the whole vertebrate nervous system, which led him on to the morphological problem of the origin of the vertebrates. Many have regretted that he spent so much time and ability on a question which they regard as insoluble; yet it may be claimed, at any rate, that if he did not solve the problem he elicited a whole series of facts of great interest, and has compelled us to look at the evolution of the vertebrates from a new standpoint.

The Evolution of the Vertebrate Nervous System.

I may summarise Gaskell's view of the evolution of the vertebrates in the briefest possible manner, thus:—

In cœlenterates the central nervous system formed a ring surrounding the mouth. When symmetry became bilateral instead of radial and the animal became elongated and segmented, the œsophagus was still surrounded by a ring of nervous tissue. But this proved to have a serious drawback. The law of progress is this—The race is not to the swift, nor to the strong, but to the wise. Increased development of the central nervous system is the essential requisite to this progress; in the great reptilian age the denizens of the earth had far inferior brains to the lords of creation in later times. This is true also of the invertebrates. As we pass from the sponges to the arthropods progress is manifested, first by the concentration of nervous material to form a central nervous system, and then by the increasing bulk and complexity of that nervous system until its culmination is reached in scorpions and spiders. No upward development is possible with degeneration of the central nervous system, and in all those cases where a group owes its survival to degeneration the central nervous system shares in the degeneration. On the other hand, if an animal spends part of its life in a larval condition, and then is transformed into a higher adult form, as, for instance, when a caterpillar turns into a butterfly, or a tadpole into a frog, although there is an extensive destruction of the larval tissues, the central nervous system never shares in this; amidst the ruins of the larva it remains, leading and directing the process of reformation. In the arthropods the larval alimentary canal may be entirely destroyed and eaten up by phagocytes, while the central nervous system not only remains intact, but increases in size.

There is, therefore, ground for postulating the formation of a new alimentary tract, but none for the formation of a new central nervous system. Comparatively early in evolution a conflict is seen between the development of the central nervous system and of the alimentary tract. The highest arthropods developed the central nervous system until it gripped the œsophagus so tightly that they could only continue to exist as blood-sucking animals, such as spiders and scorpions. Thus when vertebrates first appeared the progress of the arthropods was leading to a terrible dilemma—either the capacity for taking in food without sufficient intelligence to capture it, or intelligence sufficient to capture food and no power to consume it. This mistake was rectified and further evolution secured in the vertebrate type by the formation of a new food channel, in consequence of which the brain was free to develop to its fullest extent, growing around the old alimentary canal, which became the central canal of the central nervous system. The infundibular tube represents the old arthropod œsophagus which leads into a large stomach situated in the head, represented in the vertebrate by the ventricles of the brain. The arthropod stomach leads into the straight narrow intestine, just as in the vertebrate the fourth ventricle leads into the straight narrow canal of the spinal cord. In the vertebrate embryo the canal of the spinal cord is joined to the anus by the neurenteric canal, which represents the terminal part of the arthropod intestine.

And here may I interpolate that if the central canal of the nervous system is thus a vestigial structure it might be expected to show, like other vestigial structures, a liability to disease. I would suggest that this might help to throw light on the obscure pathology of three diseases connected with the epithelium of the central canal—Friedreich's ataxia, disseminate sclerosis, and syringomyelia. I was therefore interested to read the report of a case[1] in which disseminate sclerosis and syringomyelia co-existed, again pointing to a common origin.

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[1] M. Robertson: Review of Neurology and Psychiatry, vol. x., No. 10.

Geological Evidence.

Gaskell also adduced geological evidence in support of his theory.

> Each successive advance in the vertebrates started from the dominant type then existing—mammals from reptiles, reptiles from amphibia, amphibia from fishes. We might, therefore, expect that fishes arose in their turn from the race which was dominant when they first appeared. This was in the Silurian age, when sea-scorpions, king-crabs, and trilobites constituted the dominant race of Palæostraca. And the first fishes resembled Palæostraca so closely that it is often difficult to tell whether an individual fossil is an arthropod or a fish. It is very suggestive that the lowest non-degenerate vertebrate, the lamprey, resembles the king-crab in its larval stage, shedding its arthropod features when it is transformed to an adult.

In the evolution of the nervous system there is a parallel development of structure and function; reflex movements came first, and were possible with a simple form of nervous system such as is presented by the parts concerned in a spinal reflex; then as the supra-œsophageal ganglion became larger and more differentiated, more complex and automatic acts become possible. There is a general agreement among comparative anatomists, I believe, that the supra-œsophageal ganglion of the invertebrate is homologous with the corpus striatum of the vertebrates. The globus pallidus of the corpus striatum represents practically the whole forebrain in the fishes. This centre for automatic action enables the fish to keep up those coördinated rhythmical movements which are necessary to maintain its equilibrium in a fluid medium. With the assumption of terrestrial habits these constant movements would be a hindrance rather than a help. Hence the development of the brain cortex with its inhibitory mechanisms. This is one reason why the newer cortical system so constantly represses the activity of lower centres; it was originally evolved for that purpose. Hence its damage in early life results in a return of rhythmical movements in the form of athetosis. But it did not stop there; for while automatic movements are retained for primitive purposes the cortex not only keeps them in check, but moulds them into those higher forms of movement which we call voluntary. And as the pre-frontal region develops, it in its turn exercises control over both voluntary and automatic movements, restraining emotional expression but increasing skill through increased intelligence.

RECENT VIEWS ON THE EVOLUTION OF MAN.

In this connexion Elliott Smith's recent views on the evolution of man are of interest.

> He regards the Tarsius rather than the Lemur as nearest the direct line of human ancestry. Below the mammals the dominant sense is that of smell, but the Tarsius by shortening its nose was able to bring its eyes forward and achieved stereoscopic vision. The increased information thus afforded as to the shape of things developed skilled movements of the hands and a finer sense of touch, with a corresponding cortical area to correlate touch with vision. Man, he says, represents the straight line of development. It is the animals which have departed from this straight line and for self-preservation have developed specialised characters (e.g., the great strength of the gorilla), which have failed in the race for supremacy. Man has developed and become the greatest of the primates because of his faithful dependence upon development of the brain. The key to evolution lies in the continuous development of the nervous system.

Here, as elsewhere, the individual repeats the history of the race. Fœtal movements begin when the tracts connected with the corpus striatum acquire their medulla—i.e., when the fœtus is a fish swimming in amniotic fluid—while the pyramidal tract from the cortex does not become myelinated until the infant begins to walk. And the pyramidal tract announces itself as a new arrival in the spinal system by being the most variable in its position in different species; the last to appear has to accommodate itself to the space left for it by the others.[2] This difference in the history of these structures is correlated with a difference in the symptoms they present when diseased. Thus, while lesions of the basal ganglia, as in progressive lenticular degeneration and Parkinson's disease, cause tremor, rigidity, and weakness, defects in the pyramidal tracts lead to an extensor response, spasticity, and paralysis of voluntary movement. As on the motor, so on the sensory side. The optic thalamus represents an older receptive structure than the sensory cortex. Head and Gordon Holmes have shown that while the stimuli which appeal to the thalamus have to encounter a higher threshold before they can enter consciousness, they tend when effective to produce too marked and too prolonged a change. This the cortical mechanism has to control. The sensory cortex, on the other hand, has a quick reaction-time and a low threshold. It enables attention to be concentrated on any part of the body that is stimulated, and the sensations to be brought into relation with other sensory processes, past and present. It contributes, therefore, towards that control of feeling and instinct which is necessary to evolutionary progress. Or to take another example, man, having laboriously acquired the power of speech, has to learn the still more subtle art of silence.

THE INFLUENCE OF THE GREGARIOUS HABIT.

Just as the evolution of the individual is marked by greater powers of reaction and yet by a more controlled display of that power, so this process widens from the individual to the community of which he forms part. Self-control has to be learned, not only to divert energy into higher channels, but for the sake of others. Twice a "fault" in evolution has occurred: once when the dilemma between nutrition and intelligence was allowed to arise among the invertebrates, and again in the development of the huge mesozoic reptiles. The complete disappearance of these enormous animals recalls how frequently the worship of the ideal of the colossal, or shall I say "Kolossal," has heralded a downfall. It may be claimed that these gigantic reptiles were adapted to existing conditions, and vanished when those conditions changed. And yet there is something about them that inevitably suggests the 'prentice hand; just as there is about the first railway engine, the first motor-car, or the first "tank." Anyhow, mere bigness was then exploited to the full and found wanting. Now, it is important to note that on both these occasions a way of escape was found in gregariousness—the substitution of coördination between smaller individuals: firstly, for increased complexity of brain; and secondly, for mere increased size of body.

The enlargement of the unit exposed to natural selection by the development of a coördinated herd, in which each individual is absorbed into the community and is helpless apart from it, marks as distinct an advance in evolution as that from unicellular to multicellular organisms, and is fraught with even greater possibilities. For bees and ants this development was comparatively easy. A swarm of bees, says Trotter,[3] produces the illusion of a single animal, differing from the other metazoa, which it has outdistanced in the race of evolution, not merely in its immense power, energy, and flexibility, but also in the almost startling fact that it has recovered the gift of immortality which seemed to have been lost with its protozoal ancestors. Now it is to the very smallness of the brain of the individual bee, and the limited number of reactions of which it is capable, that the early attainment of complete success in the organisation of the hive is due. But, as he points out, for the mammals, with their greater powers of varied reaction, the path to the consummation of the possibilities offered by gregariousness must of necessity be longer, more painful, and more dangerous, and this applies in an altogether special degree to man. According to H. G. Wells, the change from the Palæolithic huntsman to the agricultural Neolithic man marks the stage at which self-suppression had to begin. "Man then entered upon the long, tortuous, and difficult path for the common good, with all its sacrifice of personal impulse, which he is still treading to-day." But I doubt if even Palæolithic man escaped from the control of the herd.

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[2] Tilney: Journal of Mental and Nervous Diseases, vol. xlvi., p. 81.

The first law of the herd is, "Thou shalt not." Just as the development of the higher nerve centres leads to inhibition of instinctive activities, so the development of communal life must restrict the freedom of the individual. To take one instance —the history of mankind has been the story of a struggle for exogamy and monogamy in the interests of the race—and the very difference of our attitude towards a breach of these two laws is an indication of the length of the evolutionary phases which stretch out between them. It is curious that while the evolution of man's body from lower animals meets with general acceptance among educated people, the idea of a similar evolution of his mind is often found repellent. Yet it is clear that the individual recapitulates the history of the race mentally as he does physically, and with similar modifications. Just as the fœtus is a swimming fish profoundly modified by the protection derived by intra-uterine life, so the infant is a primæval savage, profoundly modified by helplessness and immaturity. Samuel Butler, who was too far ahead of his time for many of his evolutionary ideas to gain acceptance, expressed the same idea somewhat as follows:—

> Man begins as the primordial cell, splitting himself up, always doing as he did before but always with the additional experience gained by having done it once more. He will do his fish trick, so to speak, on his head, from long practice, and then the tadpole trick by rote. Then he grows arms and legs, all unconsciously, from the inveteracy of habit, but he has not learnt the lesson of human construction so thoroughly. Some parts of it, such as breathing, he is well up in, inasmuch as it forms part of previous rôles—but the teeth and hair, the upright position, the power of speech, though all tolerably familiar, give him trouble. Then comes his newer and more complex environment, and this puzzles him.

THE UNCONSCIOUS MIND.

Freud has done good service in emphasising the essential resemblance between the working of the childish and primitive minds. The myths of the ancients are repeated to-day in children's imaginations. It is not a mere accident that in fairy-tales it is the youngest son who slays the dragon and marries the princess, for just as fairy-tales express the attempts of the primitive mind to escape from the pressure of reality, so the child escapes from the feeling of inferiority in day-dreams. And elder children usually see to it that this feeling of inferiority shall be most experienced by the younger. When Dr. Montessori unreservedly condemns fairy-tales for children she forgets how natural, nay, how imperative, it is for the individual to repeat the history of the species mentally as he does physically.

And a reversion to this childish and primitive attitude of mind is seen in many forms of insanity. On the mental side, like Peter Pan, a psychoneurotic never grows up. As Hughlings Jackson said, there is a positive and a negative element in every case of insanity. In modern parlance the reality principle is in defect, the pleasure-pain principle is in excess.

But to a varying extent we are all still "puzzled by our environment." Man is possessed of powerful instincts, boundless desires, and a varying degree of reason. He has a considerable capacity for pleasure, and a much greater capacity for pain—his instincts drive him to seek the former and avoid the latter—his reason seeks after reality. Or if his reason does not seek it his environment forces it on his notice; most people tire of knocking their heads against stone walls, or of kicking against the pricks. As development proceeds the earlier mental phases tend to sink into the unconscious. Yet, as Bergson says:—

> "The past follows us at every instant, all that we have felt, thought or willed from our earliest infancy, is there, leaning over the present which is about to join it, pressing against the portals of consciousness that would fain leave it outside. The cerebral mechanism is arranged just so as to drive back into the unconscious almost the whole of this past, and to admit only that which can cast light on the present situation, or further the action now being prepared—in short only that which can give useful work. At the most only a few superfluous recollections may succeed in struggling through the half-open door. These memories, messengers from the unconscious, remind us of what we are dragging behind us unawares."

If I may change the metaphor, the surface current of the stream gives little idea of its force and depth; on which, however, its momentum depends. Samuel Butler[4] carried this idea still further back, expressing it beautifully in yet another metaphor.

> "His past selves are living in him at this moment with the accumulated life of centuries. 'Do this, this, this, which we too have done and found profit in it' cry the souls of his forefathers within him. Faint are the far ones, coming and going as the sound of bells wafted to a high mountain, loud and clear are the near ones, urgent as an alarm of fire."

And yet as we develop we remain more responsive to the far-off sounds than to the near ones. Indeed, as Otto Rank says,—

> "The detachment of the growing individual from the parental authority is one of the most necessary, but also one of the most painful, achievements of evolution."

To learn to see things as they are is the task of growing up. The unconscious mind employs only the pleasure-pain principle, which takes no account of time, as is well illustrated in dreams. The reality principle, recognising the element of time, does not demand immediate satisfaction, but can devote itself to the ultimate achievement of its aims. But since the pleasure-pain principle cannot be altogether abandoned it must be adapted and adjusted.[5] And out of defective adjustments psychic conflicts arise. I am as convinced that Freud is right in his general conception of the unconscious mind as I am that he is wrong in his limited view of the way in which it works. Its action is based on all the instincts, not merely on one. And we may adopt Dupré's epigrammatic classification of them—the instinct of self-preservation, relating to the life of the individual, the instinct of reproduction relating to the life of the species, the instinct of association relating to the life of society. In general the emotional conflicts which arise occur between the last and either of the other two.

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[3] Trotter: Instincts of the Herd in Peace and War.

[4] Samuel Butler: Life and Habit, p. 52.

All who have studied the psychoneuroses of war are agreed as to the predominating influence of the instincts of the herd and of self-preservation. Or as Rivers[6] puts it:—

> "They depend upon a conflict between the instincts of self-preservation and certain social standards of thought and conduct, according to which fear and its expression are regarded as reprehensible."

And he points out in an interesting way the influence that the different training and responsibility of officers and men has in determining the type of neuroses they each develop. I have elsewhere compared some of these neuroses to the protective mimicry of insects, not a voluntary but an instinctive act. Rivers says:—

> "On the whole the officer is more widely educated than the private soldier: his mental life is more complex and varied, and he is, therefore, less likely to be content with the crude solution of the conflict between instinct and duty which is provided by such disabilities as dumbness or the helplessness of a limb. The histories of officers suffering from an anxiety neurosis often show the existence of temporary mutism, paralysis, or other functional disability in the early stages of their illness; but these solutions of their conflict do not satisfy them, and their disabilities speedily disappear to be replaced, sooner or later, by symptoms directly dependent on anxiety."

THE CONFLICT OF THE INDIVIDUAL WITH THE HERD INSTINCT.

A man may resolve his conflict with the herd instinct in one of four ways, according to Stoddart[7]:—

(1) "The herd instinct is voluntarily ignored, the delinquent avowing to himself that he has a perfect right to do as he likes." But few are prepared to become Ishmaels.

(2) "The conflict is condoned by 'rationalisation.'" This amounts to conscious or unconscious hypocrisy.

(3) "The emotional tone may gradually pass off as years roll by, and he becomes more occupied with other matters." Or, one might add, the emotion becomes sublimated into higher or more social activities—the best way of escape.

(4) "The memory is banished from consciousness, but not from the mind; an attempt is made to repress it so that it does not re-enter into consciousness. But repression may subsequently fail." Then it will prove the basis for neuroses.

PSYCHO-ANALYSIS *versus* SUGGESTION.

Now it is only the last solution which comes under our treatment. And it might be urged that, if psycho-analysis is right, suggestion is wrong as a therapeutic measure. Suggestion treats the symptoms by telling the sufferer there is no cause for their existence. Psycho-analysis professes to open the festering abscess, to drag the skeleton from the cupboard into the light of day. The bogey, stripped of its sheet and candle, becomes a turnip on a stick. And yet both have a common aim—to bring the sufferer into harmony with the herd. We are suggestible just because we are gregarious, but we are only susceptible to suggestions emanating from the herd. Psycho-therapy attempts to produce a more stable individual, adapted to his environment, but, as Trotter shows, not necessarily, and indeed not probably, a more adaptable being. It is not to the stable, adapted man that we look for progress. "A man is a fool or a physician at 40," runs the old adage. Perhaps both, you may say. Yet its meaning is clear. After 40 the normal man becomes less sensitive to his existing environment because he has fitted himself into it more or less, and philosophically recognises his limitations; but by that very fact he can the less adapt himself to a different one. Genius is permanently out of harmony with its environment, just as is insanity. Yet one could hardly regard with satisfaction the prospect of a world without the unstable elements that make for originality and brilliance. How much pleasure in life you and I would have missed had R. L. Stevenson been a healthy, normal individual. Have you ever read Leonard Guthrie's[8] history of the unemotional person? I quote only the latter part:—

> "He is a type of what is called a manly boy, without any nonsense about him; good-tempered, honourable, easy-going, not highly intellectual, but with a fair amount of common sense of a rather narrow order. He can obtain a pass degree at almost any university without much trouble. He makes an excellent clergyman of the muscular type, though perhaps a little intolerant of conscientious doubters of creeds which he never dreamed of questioning. In the army he is the idol of his men, who readily follow his leadership of a forlorn hope without blaming him for having made it so. In commerce he conducts a safe and never risky business, and, with capital and competent managers to guide him, will be prosperous. If wealthy he may develop a taste for art, and become renowned as possessing the finest collection in the country of pictures of the early Victorian British or 'Baby's birthday' school. In politics or religion he will stick to his party. Throughout his life he has no strong passions to battle with, care sits lightly upon him, and his ambitions are never thwarted, for he is perfectly satisfied with the state into which it has pleased God to call him."

In other words, he is admirably adapted to the herd, but he does not make for progress.

For the pressure of the herd, while developing altruism and perhaps raising the average level, tends on the other hand to discourage brilliant departures from that average. And it seems to me inevitable that the natural trend of evolution must be in the future, as in the past, in the direction of developing gregariousness, and that we must adapt ourselves to it or suffer for our departure from it. Therefore, I do not regard the curtailment of our personal liberty necessitated by the war as a temporary measure, but as a permanent change in the direction I have indicated. And we are beginning to realise from the misfortunes by which civilisation has been reduced to its present plight that the next step in gregariousness must be another enlargement of the unit, extending beyond the limits of any single race or nation.

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[5] See Federn: Psychoanalytic Review, vol. ii., p. 1.

[6] Rivers: War Neurosis and Military Training, Mental Hygiene, vol. ii., p. 513.

[7] Stoddart: Review of Neurology and Psychiatry, vol. xiii.

[8] Leonard Guthrie: Functional Nervous Disorders in Childhood, p. 11

It is not likely, however, that the process which started at least as far back as neolithic times will be completed in the life-time of anyone here present. But such speculations lie outside my practical purpose, which is to call to your notice the part played by the sympathetic nervous system in certain neuroses and its close relationship with the unconscious mind.

The Origin of the Sympathetic Nervous System.

John Hunter applied the term "consciousness" to purposive though involuntary responses, while expressly stating that he was employing the word in a different sense from its usual one, preferring to do so rather than to coin a new word. To-day we use "consciousness" in a much more restricted sense, and certainly would not apply it to reactions occurring apart from the nervous system at all. Professor Keith said we now speak of such responses as chemiotaxis, and are no wiser. While this is substantially correct, it is an advantage to have a term which reminds us that the most primitive responses of animals are due to chemical stimuli, such as we see when a plasmodium creeps away from boiled water and towards an infusion of dead leaves. The development of a nervous system is a later event; it enables very rapid reactions to occur. Now, for what purpose would a rapid response be most vital? Obviously, for self-preservation.

These considerations explain certain fundamental facts. As differentiation proceeded the chemical stimulants or hormones became concentrated and specialised in certain ductless glands. The continuity of the species no longer depended on simple fission, but on the activity of special germ cells. The close association we note between the reproductive glands and the endocrine glands is thus based deep in evolution. Then, when the more rapidly reacting nervous system developed, while concerned with the functions of organic life, it would be most intensely active when a struggle for existence became necessary. The sympathetic nervous system is a mechanism adapted for rapid and widespread reaction in this struggle. Further, as this more rapid mechanism developed it might be expected to do so in connexion with the older chemical methods. So that as both endocrine glands and the sympathetic nervous system became specialised they remained associated. This association is reciprocal; not only does the sympathetic nervous system stimulate the secretion of certain ductless glands, but the secretion of some of them in turn increases the sympathetic response. Thus the sympathetic nervous system, the endocrine glands, and the gonads form a basic tripod entrusted with the duty both of the preservation of the individual and the continuity of the species. Their relationship is shown in disease as well as in health, and is reflected in many neuroses and psychoses.

Definite evidence in support of this association is provided by the researches of Dr. J. F. Gaskell, who has done so much to confirm his father's views. In the worms there are cells in the central nervous system which are the common ancestors of both the sympathetic ganglion and the adrenalin-secreting cell. Their development is parallel with that of contractile blood-vessels, comparable with vertebrate heart muscle, which are acted upon both chemically and nervously by these ancestral cells. They regulate but do not initiate the contractile rhythm—an interesting support to another Gaskellian theory. In the lowest vertebrate, the lamprey, there is a scarcity of sympathetic cells but a diffuse distribution of this adrenalin-secreting tissue, which controls the blood-vessels. In the course of evolution these cells have gradually given way to an increasing development of the sympathetic system, so that ultimately their only surviving remnant is the medulla of the adrenals. Thus, there is a gradual predominance of the nervous over the chemical element in the partnership as the higher levels of the nervous system are evolved.

Arrangement of the Autonomic Nervous System.

The starting point of Gaskell's observations on the sympathetic was his recognition of the small calibre of its fibres as they left the spinal cord. Adopting this as a standard, he showed that there were fibres with visceral functions in the cranial and sacral nerves. They may be called the parasympathetic, applying the name "autonomic nervous system" as an inclusive term for all these small fibres which carry out the functions of organic life without the control of the will. They form part of the primitive segmentation of the cord, but are absent from its cervical and lumbar enlargements, which are devoted to the innervation of those later developments, the great limb muscles. He showed that these small fibres represented the connector element of reflex action, and that their method of distribution outside the spinal cord enabled them to produce widespread effects.

Gaskell further showed that when the sympathetic and parasympathetic were distributed to the same structure they were antagonistic. Thus, the sympathetic dilates the pupil while the parasympathetic contracts it—the sympathetic accelerates the heart, the parasympathetic slows it. The sympathetic inhibits or diminishes the movements of the alimentary canal, while the parasympathetic increases them. Thus the reason for double innervation was explained, which Hunter had noted but could not understand. Speaking of the vagus in fishes, Hunter said—

> "Surely it must appear extraordinary that a nerve should arise from the brain to be lost in common parts, while there is a medulla spinalis giving nerves to the same parts. It must still remain one of the inexplicable circumstances of the nervous system."

Yet Hunter had got near to recognising why involuntary muscular actions should require a double nerve-supply without actually grasping it.

The Functions of the Autonomic Nervous System.

The rôles of the sympathetic and parasympathetic may be summarised thus. Sympathetic stimulation serves to activate the body for a struggle, and to increase its powers of defence. The pupil dilates to increase perception of light; the heart beats more quickly and more forcibly to supply the muscles with blood; the blood-vessels in the visceral area constrict, raising the blood pressure, and driving the blood from the digestive area, whose functions are simultaneously inhibited, into the skeletal and cardiac muscles, the lungs, and the brain. The sweat glands are stimulated to cool the body heated by its excessive muscular effort, and the hairs are erected in many animals to render them more alarming. As Crile[9] says:—

> "The mechanisms for self-defence which we now possess were developed in the course of vast periods of

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[9] Crile: The Origin and Nature of the Emotions. Philadelphia and London. 1915.

time through innumerable intermediate stages from those possessed by the lowest forms of life. One would suppose, therefore, that we must now be in possession of mechanisms which still discharge energy on adequate stimulation, but which are not suited to our present needs."

The pilo-motor fibres are an example of this, for, however useful the erection of hairs may be to a cat confronted by a dog, the "goose-skin" experienced by man under emotional stress can serve no useful purpose. Some emotional responses, like some of our bodily structures, are vestigial remains.

Gaskell showed that the inhibitory action of the vagus on the heart is anabolic. The display of kinetic energy is replaced by the storage of potential energy. And Cannon[10] has extended this, pointing out that the functions of the cranial visceral fibres may all be regarded as anabolic. He says:—

> "A glance at these various functions of the cranial division reveals at once that they serve for bodily conservation: by narrowing the pupil they shield the retina from excessive light, by slowing the heart-rate they give the cardiac muscle longer periods for rest and invigoration, and by providing for the flow of saliva and gastric juice, and by supplying the muscular tone necessary for contraction of the alimentary canal they prove fundamentally essential to the processes of proper digestion and absorption, by which energy-yielding material is taken into the body and stored. To the cranial division of the visceral nerves, therefore, belongs the quiet service of building up reserves and fortifying the body against times of need and stress."

The sacral division of the parasympathetic consists of the pelvic visceral nerve. It may be regarded mainly as a mechanism for emptying.

> "Like the cranial division, the sacral is engaged in internal service to the body, in the performance of acts leading immediately to greater comfort." (Cannon.)

In pain, fear, rage, and any intense excitement the sympathetic neurons are brought rapidly into play, and the action of the cranial division of the parasympathetic is inhibited. In other words, the anabolic activities of the body are in abeyance, and the katabolic activities go on unchecked. Potential energy is converted into kinetic and reserves are freely spent. This is comprehensible now that we see these katabolic activities are defensive in origin and aided the primitive animal in its struggle with its antagonist, and that complex organism the State, when at war, like the individuals of which it is composed, inhibits its anabolic activities, spends its reserves, and brings into play every katabolic activity which can aid it in its struggle for victory. But exhaustion may follow.

The Action of Adrenalin.

The way in which adrenalin coöperates in all this has been admirably expressed by Cannon:—

> "Adrenalin plays an essential rôle in calling forth stored carbohydrate ...... flooding the blood with sugar; it helps in distributing the blood to the heart, lungs, central nervous system, and limbs, while taking it away from the inhibited organs of the abdomen; it quickly abolishes the effects of muscular fatigue, and it renders the blood more rapidly coagulable. These remarkable facts are, furthermore, associated with some of the most primitive experiences in the life of higher organisms, experiences common to all, both man and beast, the elementary experiences of pain, fear, and rage that come suddenly in critical emergencies. ...... The most significant feature of these bodily reactions ...... is that they are of the nature of reflexes; they are not willed movements; indeed, they are often distressingly beyond the control of will."

Now, one of the features of a reflex is its purposive character. If we seek for an explanation of the similarity of the sympathetic response to fear, pain, and rage, and other strong emotions, we may find it in Darwin's "Expression of the Emotions in Man and Animals":—

> "Great pain urges all animals, and has urged them during endless generations, to make the most various and diversified efforts to escape from the cause of suffering. ...... Whenever the emotion of fear is strongly felt, though it may not lead to any exertion, the same results tend to reappear, through the force of inheritance and association."

Crile illustrates this by a modern instance and a modern simile:—

> "And now, sitting at his desk in command of the complicated machinery of civilisation, when he fears a business catastrophe his fear is manifested in the terms of his ancestral battle in the struggle for existence. ...... Nature has the one means of response to fear, and whatever its cause, the phenomena are always the same, always physical." "Under modern conditions of life neither fight nor flight is de rigueur. The individual under the stimulation of fear may be likened to an automobile with the clutch thrown out, but whose engine is racing at full speed. The petrol is being consumed, the machinery is being worn, but the machine as a whole does not move, though the power of its engine may cause it to tremble."

The influence of this perturbation can be traced in many diseases. But we shall see these in truer perspective if we note the relationship of the autonomic to the rest of the nervous system.

THE INFLUENCE OF PSYCHIC CONFLICTS AT DIFFERENT LEVELS.

One of Hughlings Jackson's most illuminating generalisations was the conception of the evolution of the nervous system in three levels. Jelliffe has modified the original idea in labelling these the vegetative, the sensori-motor, and the psychic levels. However distinct in their evolution, the structures composing these levels have become inextricably intertwined. So that a disturbance originating in a viscus may produce a psychic disturbance, while conversely a psychic conflict may show its effect only at the vegetative level. If it shows its effect at the psychic level it may produce an obsession, if it sinks further into the unconscious it may produce a functional tremor, paralysis, or contracture; or sinking still further away may show its effect in the autonomic nervous system. If this effect tells mainly on the parasympathetic it may declare itself as asthma, arrythmia, slow pulse, hyperchlorhydria due to over-secretion, or enterospasm. If it tells on the sympathetic the results may be even more diverse. "The sympathetic system is at the mercy of the mind" said Leonard Guthrie. But in disease the action of the sympathetic, instead of being general, may become dissociated, throwing the machinery out of balance. Thus, over-stimulation of the sympathetic may mainly affect the vaso-constrictor nerves, producing a rise of tension, which is often seen to follow prolonged worry. Or it may cause atony of the stomach and bowels, with spasm of the associated sphincters, resulting in reflex dyspepsia and intestinal stasis. I need only mention in passing the production of gall-bladder and appendix dyspepsias in this way. Tyrrell Gray has recently emphasised the influence of visceroptosis in producing stasis not so much by leading to mechanical kinking, but by dragging on the sympathetic nerves in the mesentery and thus inhibiting peristalsis. Similarly, stasis may be initiated through the influence of mental shock, anxiety, or grief on the sympathetic. Thus we can understand why, though visceroptosis has been present since birth, it caused no symptoms until sympathetic inhibition supervened. We can also understand not only why a Curtis support may relieve symptoms of visceroptosis by raising intra-abdominal pressure, even though X rays show that it does not replace the viscera, but also why a happy marriage may be even more effectual. Not all our woes and ills depend on our having the presumption to walk on two legs instead of four.

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[10] Cannon: Bodily Changes in Pain, Hunger, Fear, and Rage. London. 1915.

The influence of the sympathetic on the thyroid gland is profound. Cannon joined the central end of the phrenic nerve to the peripheral of the cervical sympathetic in a cat, so that the gland was stimulated with every breath. This resulted in tachycardia, increased excitability, diarrhœa, exophthalmos on the side of the operation, and a great increase in metabolism. In some cases there was an increase in the size of the adrenals. The whole aspect of the sufferer from Graves's disease resembles that of fear, and is produced through a similar nervous mechanism. Crile says:—

> "I have never known a case of Graves' disease to be caused by success or happiness alone, or by hard physical labour unattended by psychic strain, or to be the result of energy voluntarily discharged."

In this connexion note the epidemics of hyperthyroidism which followed the air-raids on London, the Kishineff massacres, and the San Francisco earthquake.

GLYCOSURIA.

Take, again, the case of glycosuria. When stocks go down in New York, says Crile, diabetes goes up. Temporary glycosuria occurred in a number of men who merely watched a football cup-tie without participating in it. I have been struck with the number of cases I have seen in young naval officers. I am inclined to refer its higher incidence in the senior service to the much greater responsibility which falls to the lot of junior officers. Diabetes is characterised, like sympathetic stimulation, by an exaggerated metabolism. This first shows its effect on the most abundant and most easily metabolised of the foodstuffs, the carbohydrates, which are also essential for muscular action, to which sympathetic stimulation should normally be a preliminary. It is noteworthy that the glands which increase katabolism and lower cabohydrate tolerance, the pituitary, thyroid, and adrenals, are all stimulated by the sympathetic. On the other hand, the pancreas, which is anabolic and increases carbohydrate tolerance, is probably inhibited by the sympathetic. Thus, we can understand why sympathetic stimulation through various disagreeable emotions should increase metabolism generally, and specially lower carbohydrate tolerance. And alimentary rest would diminish glycosuria by enforcing a more economical method of metabolism. Allen, who is one of the most convinced adherents of the pancreatic origin of diabetes, admits that a man may actually die of diabetes and yet have as good a pancreas as normal—so that a functional incapacity of the pancreatic cell-islets, due to some nervous influence, may be responsible. In his latest writings he lays considerable stress on the hydropic degeneration of these islets, while acknowledging this to be a result, and not a cause, of the disease. Even he admits, therefore, that ordinary diabetes shows itself through the pancreas rather than merely as a symptom of pancreatic disease. And I think I have shown that the views of Allen on the one hand and those of Eppinger, Falta, and Rudinger on the other concerning a loss of endocrine balance as the cause of diabetes find their reconciliation in its production through the sympathetic nervous system.

In this connexion I may quote two interesting cases recorded by Singer and Clark,[11] in which there was a definite alternation between the exhibition of mental symptoms and the presence of glycosuria, just as in catatonia the somatic disorders clear up during the mental disturbance, reappearing as the mental condition becomes clearer. It would appear as if the emotional discharge asserted itself either at the metabolic or the psychic level in such conditions and not at both.

I do not mean to imply that all cases of diabetes are necessarily dependent on a functional disturbance of the sympathetic nervous system. We are too ignorant of the morbid anatomy of the sympathetic to say this. In some diseases of the sympathetic, such as pellagra, definite structural alterations have been found, and there is a crying need for its systematic microscopical examination in diabetes. All I do claim is that diabetes can be most easily explained by a disturbance of the sympathetic nervous system, and that this disturbance can be produced by emotional stresses and strains. The frequency with which it occurs in that most emotional race, the Jews, and its association with families of a neuropathic tendency point in the same direction.

The fact that the cause of a vegetative neurosis is not always remembered is beside the mark. The patient would naturally tend to push it "out of his mind," which only means pushing it into that deeper level of the stream where, nevertheless, it is borne along. Nerve impulses tend to run along accustomed channels, whether those channels are conscious or unconscious. Indeed, the longer they are in use the more unconscious they become—a fact that is well illustrated in acts which primarily affect consciousness acutely, such as playing the piano or riding a bicycle.

THE DYNAMIC CONCEPTION OF DISEASE.

Disease means an attempt by the body to establish a new position of equilibrium, whether it is invaded from without or faced by a difficult environment. In this reaction every tissue and organ plays its part, but especially that master tissue the nervous system, through which our predominant position in evolution has been achieved. The dilated pupils, the sweating, the tachycardia and increased katabolism, together with the ultimate adrenal exhaustion produced by many infective fevers shows the similarity of its response to the seen and the unseen foe. In the view here presented there is no break between the chemical reactions carried out by the endocrine glands and the highest reactions of the most recently evolved nervous structures. Endocrinology and psychotherapy are not opposed but complementary measures, applicable to different ends of one system, and both ends may be involved in the same process. The difficulty in harmonising oneself with the environment may be due, in part, to failure in the chemical mechanisms. Psychotherapists are too apt to forget this, and may even suggest to an eminently suggestible subject an explanation of his complexes which springs from their own obsessions. I say this with fear and trembling, expecting the retort that such a remark is merely an interesting demonstration of my own complexes or resistances. But not even the youngest of our therapeutic or diagnostic measures is infallible. Yet it is just as erroneous merely to treat the patient as a test-tube in which certain drug reactions can be made to occur, and the man who does so not only fails to realise his responsibility but misses a most interesting part of his work. The old injunction to examine the whole of a patient must be interpreted to include the consideration of his environment in its widest sense. With this widened conception opening out before us, the practice of medicine becomes an occupation of even more absorbing interest, to which we can devote our lives with pleasure and enthusiasm.

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[11] Singer and Clark: Journal of Mental and Nervous Diseases vol. xlvi., p. 421.

HEAT HYPERPYREXIA.[1]

BY W. H. WILLCOX, C.B., C.M.G., M.D., F.R.C.P. LOND.,
PHYSICIAN TO ST. MARY'S HOSPITAL, LONDON; CONSULTING PHYSICIAN, MESOPOTAMIAN EXPEDITIONARY FORCE, 1916–1919.

DURING the summers of 1916, 1917, and 1918 a large number of cases of illness due to exposure to high atmospheric temperature occurred amongst the troops in Mesopotamia, and it is upon a careful study of these cases that this paper is based.

Ætiological Factors.

First among these is *climate.* High temperature, coupled with the flatness of the country and absence of shade and the great humidity in certain parts owing to floods and swamps, make Mesopotamia one of the most dangerous countries in the world as regards risk of heat hyperpyrexia.

A maximum shade *temperature* of 110° F. appears to be the dangerous limit. When this is reached some cases of "effects of heat" are sure to occur, and each degree of rise above this limit is attended by an increasingly larger number of cases. Temperatures of 120° or over are exceedingly dangerous, and on these days, in spite of all precautions, large numbers of heat-stroke cases occur. A comparison of the temperature records of 1917 and 1918 for Baghdad shows the reason of the far greater number of cases of heat-stroke in the former year. Thus, in 1917, on six days in July the shade temperature was 120° and upwards, and on 15 days it was 115° and over. In 1918 the temperature did not reach 118°, and on only two occasions was it 115° or over.

The effect of heat is undoubtedly *cumulative* in action, one or two very hot days not necessarily being followed by a large number of cases of heat-stroke; it is the succession of several hot days which is dangerous. The case incidence curve follows the temperature curve with a delay of a few days in the rise of the former. The cumulative effect of heat is shown on the individual; thus a man may be exposed to heat for one or more days and then develop an attack of heat hyperpyrexia in the night or early morning after the atmospheric temperature has fallen considerably.

As showing the effect of *stagnation of air*, free currents of air have great protective value by promoting evaporation from the skin and loss of heat. Electric fans and punkahs were largely used in Mesopotamia in hospitals and dwellings occupied by troops from 1916 onwards. They were of vital necessity to the British troops during the hot months. When the temperature is very high the air from a fan is like a hot blast, and unless the body be covered with a moist sheet, or a moist screen intervenes, the fan is of little value as a cooling agency, and, indeed, may do more harm than good.

The risk of heat hyperpyrexia depends largely on personal protection, and if care be not taken any *age* is subject to it. The case-mortality is undoubtedly greater in men over 40.

The influence of *race* is very important. Heat hyperpyrexia, due to heat alone and not to the complication of other diseases, is very uncommon amongst Arabs and Indians; indeed, when it occurred in them some complicating disease, such as malaria, was almost always found as the cause. White races are much more susceptible to the effects of heat, and in British troops a large percentage of the cases was due to heat per se.

Exertion taken during the heat of the day is a great predisposing cause, especially if heavy kit is carried.

In regard to *predisposing diseases*, any disease causing pyrexia predisposes to heat-stroke in the hot weather. Malaria is one of the commonest of these, and in Indians was almost always the cause of heat hyperpyrexia. During an attack of sand-fly fever in the hot months hyperpyrexia occasionally occurred. Captain H. C. Sinderson has suggested[2] that sand-fly fever is a common cause of heat hyperpyrexia. I cannot agree with this, because in the great majority of cases of heat-stroke there is no evidence whatever of sand-fly fever, and during the great incidence in July and August, 1917, sand-fly fever was entirely absent. Enteric group disease, if occurring in the hot weather, is sometimes complicated by heat hyperpyrexia, as also is typhus fever both in the acute stage and apyrexial period. I have seen heat-stroke occur during the early stages of small-pox before the appearance of the rash.

Pathology and Morbid Anatomy.

I have no doubt that heat hyperpyrexia is a clinical entity and that it occurs apart from intercurrent diseases. The clinical history of cases of pure heat hyperpyrexia and the course of the symptoms after the acute stage, which often exhibit a prolonged pyrexia and profound toxæmia with the absence of any bacteriological infection, strongly indicate that the cause is an auto-intoxication as the result of the effect of heat on the body tissues. My experience leads me to believe that this is the cause of heat hyperpyrexia. The auto-intoxication occurring in heat-stroke cases was found to be associated with the presence of acetone and diacetic acid in the urine in only a small proportion of cases (about 12 per cent.), and in these the reaction was of only moderate intensity. It thus appears that heat hyperpyrexia is not due to an acid intoxication. The presence of indican in excess in the urine in acute cases is of importance and is an evidence of the auto-intoxication present.

Suppression of sweating did not, in my experience, always precede heat hyperpyrexia, and though it is undoubtedly an important predisposing cause it cannot be regarded as the primary one. Thus some cases of heat hyperpyrexia occurred suddenly in exposed men who were in good health without any previous evidence of lack of skin action, and in cases of the gastric type of heat hyperpyrexia no previous suppression of sweating was observed, though they had been under observation in hospital for several days.

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[1] Abstract of paper read before the Medical Society of London on March 8th, 1920.

[2] Brit. Med. Jour., July 19th, 1919.

Clinical Types of Illness Caused by Exposure to Heat.

(1) Heat exhaustion (mild type); (2) gastric type; (3) choleraic or gastro-intestinal type; (4) heat hyperpyrexia (sunstroke). In types 1, 2, and 3 heat hyperpyrexia may suddenly develop unless great care be taken in the removal of patients from a hot atmosphere. Types 2, 3, and 4 are all dangerous, and in them the prognosis is grave. Of 80 severe cases of effects of heat, of which I made careful notes, 13 (16·2 per cent.) were of the gastric type, 9 (11·2 per cent.) of the choleraic, and 58 (72·5 per cent.) were hyperpyrexial.

Gastric type.—This is one of the most interesting and treacherous forms. The patient may have a flushed face, and be restless and irritable with marked nausea and occasional vomiting, the mouth temperature and pulse normal for several days, but the rectal temperature often rising about 2°. The liver usually shows a fatty enlargement. The knee-jerks were lost in all of nine cases on which it was specially tested. This is a valuable diagnostic sign. The knee-jerk reappears when convalescence is established, the time varying with the severity of the case. Many of these cases, after four to ten days of premonitory symptoms suddenly developed a fatal heat hyperpyrexia.

Gastro-intestinal type.—In this type the onset is sudden, marked collapse occurring. The patient usually has a temperature of 101° to 103° F. Vomiting is marked and diarrhœa occurs. There were cramps in the abdomen and legs in some of my cases. The face is pale, the eyes sunken, and the skin pale and clammy. The knee-jerks are generally lost; in 4 cases specially examined they were absent in 3 and diminished in 1. The general appearance of the patient is similar to that of cholera. This type was of uncommon occurrence, but the mortality was high, death often supervening within three or four days.

Heat hyperpyrexia.—The onset is often quite sudden, the patient being taken ill when on duty with a sudden high rise of temperature and loss of consciousness. In some cases the patient, when off duty, may be found by his comrades unconscious and dying. Heat hyperpyrexia frequently occurred in the very hot weather in hospital patients suffering from another disease. In them the temperature would often suddenly rise to 110°, coma and convulsions supervening.

In many cases, however, the onset is more gradual, malaise, headache, and restlessness occurring and sometimes nausea and vomiting. Frequency of micturition is a characteristic early symptom, and is sometimes associated with urethral pain. The temperature is somewhat raised, 100° to 102° or so, and the skin is hot and dry. These preliminary symptoms usually last for a few hours, sometimes as long as 48, after which mental excitement and delirium supervene and the temperature rapidly rises to about 110°. With the hyperpyrexia coma and stertorous breathing occur, the face is flushed and cyanosed, and the conjunctivæ congested. The pupils are often dilated in the early stage and contracted in the comatose condition. Fibrillary twitchings of muscles and convulsions are very common, and the breathing may be Cheyne-Stokes in character. Incontinence of urine and fæces accompanies the coma. Unless the temperature is reduced by treatment death rapidly occurs from hyperpyrexia, the mode of death usually being asphyxial in type.

Marked cardiac dilatation, often associated with a systolic murmur, occurs in the severe cases. This may remain for a few weeks after the attack and needs special care. In some cases bronchitis and congestion of the bases of the lungs occur. In one case definite air-hunger was observed, and in another a spasmodic type of breathing like that of uræmic asthma. Pulmonary œdema was a terminal event in the fatal cases.

On examining the urine, indican was found present in excess in all of 6 acute cases in which a special examination was made. Acetone and diacetic acid were found present in small amount in 1 out of 8 acute cases specially tested. Albumin was detected in small amount in 3 out of 8 acute cases. No casts were seen.

Of nervous symptoms, restlessness and delirium occur with the onset of hyperpyrexia, and are quickly followed by stupor and coma, with incontinence of urine and fæces. Muscular twitching and convulsions are very common with the high temperature. The knee-jerk is almost always absent in the pure heat-stroke cases during the acute stage. Out of 32 cases specially tested the knee-jerk was absent in 27, diminished in 2, and normal in 3; in these latter cases the hyperpyrexia was probably malarial in nature. In severe cases the knee-jerk does not return for three or four weeks, in milder cases it returns earlier. The presence of knee-jerks is a valuable prognostic sign, for when they have returned there appears to be much less risk of a relapse, and the patient may then be evacuated with safety. This sign was of great practical help in deciding on the disposal of heat-stroke patients. After the acute stage in the severe cases marked mental symptoms often remain for some weeks or longer; irritability, mental confusion, and delusions are not uncommon. Usually, but not always, these symptoms clear up. Defective articulation (anarthria) occurred as an after-symptom in 4 of the severe cases of my series. Nystagmus occurred in 1 case, and squint with diplopia in 1. Multiple neuritis associated with weakness and marked wasting of the legs, the tibialis anticus muscles being most affected, occurred in 2 cases.

Many of the severe cases after the hyperpyrexia has subsided show a pyrexia, the temperature remaining for several days about 102° or 103°. In 1 case the fever lasted three weeks. Numerous blood cultures were made on these pyrexial cases with negative result. Recurrences of hyperpyrexia are very likely to occur after a heat-stroke attack unless the patient is kept in a cool atmosphere, but this is often impossible.

Treatment.

For the gastric type of case removal to a cool atmosphere, bicarbonate of soda in frequent full doses by the mouth, and free purgation give the best results.

The choleraic type of case is treated on similar lines to cholera.

Heat hyperpyrexia demands treatment with sprays of ice-cold water and fans, quinine bihydrochloride being given intravenously or intramuscularly if there is the slightest suspicion of malaria. Convulsions are treated by venesection, or morphia or chloroform inhalations.

[The prophylactic measures were fully dealt with by the author.]

SYPHILIS AT A VENEREAL CLINIC:

AN ANALYSIS OF CASES ADMITTED DURING TWELVE MONTHS.

BY E. F. SKINNER, M.A., M.B.CAMB., M.R.C.P. LOND.,
ROYAL HOSPITAL, SHEFFIELD.

THE following notes are set forth merely as an analysis of cases that have been admitted to the clinic during the period August 31st, 1918, to August 31st, 1919. During this period of twelve months the methods of the clinic and the routine work have been uniform, and though the number of cases is small, some interesting features have developed, and may be of use in comparison with similar details from other clinics. 354 new cases of syphilis have been admitted during the 12 months, 229 males and 125 females; the ages of these patients have been analysed, and the admissions at various age-periods tabulated as follows:—

Age-period.	M.	F.	Age-period.	M.	F.
Under 1 year ...	3	7	Between—		
Between—			40 yrs. and 45 yrs.	17	7
1 yr. and 10 yrs....	5	5	45 ,, ,, 50 ,, ...	14	6
10 yrs ,, 20 ,, ...	16	23	50 ,, ,, 60 ,, ...	5	3
20 ,, ,, 25 ,, ...	54	28	At 66 yrs, ...	1	1
25 ,, ,, 30 ,, ...	56	21	Not stated.... ...	3	3
30 ,, ,, 35 ,, ...	32	16	—	229	125
35 ,, ,, 40 ,, ...	23	5			

It must be observed that these figures are not ages of incidence of disease, but ages at which patients have sought admission to hospital, and it is noticeable that nearly twice (1·8) as many males are admitted as females, whilst a glance at the table will show that during the early years (1–10) and the later years the sex incidence of admission is practically the same; thus the real difference in the male and female admission-rate occurs between the ages of 20 and 50, and during this period more than twice as many males as females are seen.

There are doubtless many reasons for this, but it seems likely that the knowledge of the existence of clinics and the dangers of venereal disease as set out in propaganda literature and public notices generally is not reaching the female population to the same extent as the male; consequently steps should be taken at once to approach women more directly, either through existing organisations or by other special means.

This inference drawn from the table of age admissions of the two sexes is borne out by experience in the clinic, for whereas many men state that they have come up because they have seen the various public notices it is only very rarely that women say this; further, whereas many men seek advice before any sign of disease has appeared or has had time to appear, women do not come up until symptoms have developed, and these usually in the secondary stage. This point will be referred to again under the examination of the Wassermann-reaction results. One important conclusion apparently can be drawn from the 12 months' work: namely, that the female population is not yet aware of the dangers of syphilis and of the existence and facilities of venereal clinics to anything like the same extent as the males, and that active measures to remedy this are urgently needed.

Absentees.

In every out-patient department of a general hospital there are always a certain number of patients who come once or twice and then disappear, and a venereal department suffers in this respect perhaps more than others, for two reasons: firstly, the venereal patient is apt to be a casual person, and not one given to much thought; and, secondly, because the régime is not such a comfortable one as that of an ordinary medical out-patient department. Considering these two points, it is surprising how relatively few patients do become absentees.

Out of 354 patients admitted with syphilis during the 12 months only 58, or about 16 per cent., have failed to complete the full course, and of these only 24 failed to complete the first three injections. These figures seem fairly satisfactory, but it would be interesting to know the experience of other clinics where a full routine is employed. The sexes are represented in these figures, thus:—

	M.	F.
Failed to complete first three injections ...	16	 8
Failed to complete full course	25	 7

If a patient fails to report at the clinic at his proper date his number is noted on a black list, and at the end of two months, if the absence still continues, a printed letter is sent to him informing him that his non-attendance has been noted, and that he is advised to come again for further advice. Such a letter, in a large number of the absentee cases, either brings the patient up again or produces a letter explaining the absence, which in the case of the men is generally that they have left the district in search of employment. This is a point of some importance, and as a practical inference it might be urged that in the notices issued by the L.G.B. as to clinics great stress should be laid on the necessity of continuity of treatment. If patients are compelled to leave a district the transfer form should be completed, and advice asked as to where they are to report themselves in the new district. These transfer forms are not sufficiently used.

I have laid stress on this, as it has seemed at times that discontinuity of treatment is worse than no treatment—that is to say, that symptoms of recrudescence after an incomplete course of salvarsan are occasionally more intense than the same symptoms would have been at the same period in an untreated case; this, however, is merely a clinical impression and cannot be supported by observed data.

Marital and Congenital Cases.

The next point of interest was the number of marital cases, and in this series of 354 the number was 42, or nearly 12 per cent. Of these, 14 wives infected their husbands and 28 husbands infected their wives—that is, twice as many males were unfaithful as females. This is not the place to discuss ethical questions, but though this figure is admittedly large, if the abnormal mental and physical strain of the past three years is taken into account it is not large enough to warrant some of the gloomy statements that have been made lately on the platform and in the press.

During the 12 months, 29 cases, or about 8 per cent., of congenital syphilis have been admitted and treated, 10 males and 19 females, and these may be divided into two groups, the infantile congenital syphilis and the "lues tarda." The first group includes the snuffles, dermatoses, anæmias, &c., while the latter group comprises keratitis, otitis, &c., and these two groups are represented as follows: Infantile group, 14 admissions; "lues tarda," 15 admissions.

Most of the first group came up from the maternity and child-welfare centre, whilst the second class of case generally comes from the special departments of the hospital. These cases have all been treated by means of intravenous or intramuscular injections of neo-salvarsan, and the results in the babies have been very satisfactory; the keratitis cases have not shown the same improvement, though here I have seen sufficient benefit, particularly in the younger cases, to warrant a much more sanguine prognosis than is usually given. The cases of otitis have not reacted so well and, from those I have personally treated, my conclusion would be that once the eighth nerve becomes involved the deafness is steadily progressive, a fact possibly due to the enclosed course of this nerve.

It would be of great benefit if at every maternity and child welfare centre there were facilities for doubtfully syphilitic babies, possibly the subjects of syphilis, to be seen at the centre by a venereal medical officer, who could at once transfer them to the clinic if treatment were considered necessary. Dr. H. Scurfield, the medical officer of health of Sheffield, has kindly granted me facilities for seeing any such doubtful cases, and I have found this privilege extremely valuable, as congenital syphilis is not always an easy thing to diagnose. To miss cases at present is almost a national disaster, not only on account of the individual child, but from the fact that the mother is very often unaware of any taint in herself. It may be mentioned here that pregnant women are carefully watched, and the full course of salvarsan given up to the middle of the seventh month (one case has been carried on up to the beginning of the ninth) without any ill results to the mother, and as early as possible after the baby is born the mother brings it up for inspection. Two fine babies have been born during the 12 months of mothers who have had complete courses, and though the time since their birth is very short (one is 10 months old) they are still both apparently healthy infants.

Incidence of Clinical Types.

Primary cases.—For the purposes of this analysis a case has been called primary when the presence of a sore is noted without any other signs of the disease except inguinal adenitis, and the number of cases falling into this category during the 12 months is 47, or 13 per cent., and of these only 5 were females. Primary cases (47): males, 42; females, 5.

A striking fact about these cases is that of the 42 men 31, or roughly 74 per cent., gave a negative Wassermann reaction when first seen, whilst of the women not one had a negative blood; in other words, the women present themselves later than the men, even though a few do come up during the early stage of the disease. This emphasises the conclusion drawn from the age-table previously given.

	Males.	Females.
Primary cases with negative Wassermann ...	31	0
,, ,, ,, positive ,, ...	11	5

Secondary Cases.

Unfortunately, this type of case still furnishes the largest number of admissions, and there is obviously a great deal of work necessary before the general public is sufficiently alive to the advantages of early treatment and the dangers of quack methods. A large number of men who come up during the secondary stage confess to having sought advice from such unauthorised sources, and many more attempt to carry out home treatment of their own devising. The number of secondary cases has been 238, or 64 per cent. of the total admissions, made up as follows: males 147, females 91.

Tertiary cases.—Forty cases of tertiary syphilis have been admitted, 30 males and 10 females. This figure is purposely kept small, as it seems clear that venereal clinics are not primarily intended for such cases, but a certain number have been put on the register for the sake of watching the effect of salvarsan on such conditions as aortitis and locomotor ataxia. Other cases of tertiary syphilis are given anti-syphilitic treatment, but are not put on the venereal department register as it seems unfair to saddle the department with the added financial burden of this type of case.

Wassermann Reaction.

During the routine course of treatment the blood is examined on three occasions, before the first injection, after the fourth, and also after the seventh, and on the results of these examinations, together with clinical evidence, the further conduct of the case depends. Each case must be judged on its own merits, and no hard-and-fast rules can be laid down, nor do I wish here to go into the details of how such decisions are arrived at, as this paper is intended merely as a summary of the work done at the clinic, and only one or two conclusions based on the year's work are mentioned. The facts elicited do not present any new features, but their recital may be useful.

Primary cases.—Of the primary cases, 47 in all, 31, all men, were admitted with negative W.R., and in none of these has the reaction subsequently become positive. Sixteen of these have completed their course; the remaining 15 are still under treatment. Of the 16 completed cases, 5 have had one Wassermann test after two months' observation, during which time treatment is limited to daily inunction with mercury, and two cases have passed their second period of observation (5 and 9 months respectively after admission), all with completely negative Wassermann reactions.

Of the 16 primary cases admitted with positive reactions, 13 have completed the course, and of these the Wassermann was negative in 11 on the second test (by which time—45 days after admission—1·3 g. of salvarsan have been given with 4 gr. of mercury) and has remained negative. Of the other 2 cases, one became negative after the fifth injection, and the other gave a doubtful negative after the last injection of the routine course. This last case is interesting, as there was an intermission of three months after the third injection. This behaviour of the Wassermann reaction leads to the view that only in the earliest stage, with a negative W.R.—that is, before it has become positive—can treatment be depended on to keep the W.R. permanently negative; once the W.R. has become positive, though it may be reduced to negative by active treatment, sooner or later it again becomes positive with or without symptoms. This is well seen in the secondary cases, who, of course, all give a strongly positive W.R. at the commencement of treatment.

Secondary cases.—Fifty-five have been picked out of the total number of secondary cases as these have all completed at least a full course and have had all the necessary tests recorded. Of these, all starting with strongly positive (+ + +) bloods, 34 have given negative W.R. (−) at the end of the course, 4 have given a doubtful negative (±), 15 have remained positive (+) all through. These reactions I have grouped as A, B, C.

Amongst the routine questions put to each patient is one to elicit, if possible, the time of infection and date of onset of symptoms, and these two dates have been worked out for the cases falling into the above three groups, and the period of time elapsing between infection and commencement of treatment is shown in the following table.

Group.	A.		B.		C.
Average number of days since infection	70	......	92	......	89
Average number of days from onset of symptoms to starting treatment ...	36	......	66·5	......	65
W.R. at completion of treatment	–	......	±	......	+

From these figures it seems quite clear that in those groups B and C, where the W.R. did not become negative, the time intervals are considerably longer than in group A. One would have expected group C to show the longest time intervals, but in this series such is not the case, and it is possible that the difference between ± and + in these cases is really small. It is interesting to note that the average age of these groups becomes progressively higher, thus: average age, group A, 26·2; B, 28·7; C, 30·8. It is possible that this may eventually be found to have some bearing on the blood reaction and account for the readings in group C; at present, however, the figures are accepted as they stand.

The interval "onset of symptoms to commencement of treatment" is a much more accurately-determined one than "date of infection to commencement of treatment," since the average out-patient dates all events from the various feasts, Easter, Whit-Sunday, and so forth, and the exact date of any particular exposure to infection is generally rather hazy in consequence. In groups B and C this interval is nearly twice that in group A, and seems to render the blood more stable positively (+) and a negative W.R. more difficult to produce.

The cases in Group A all gave a negative W.R. after 81 days' treatment, but of the 34 in this group only 15 have been under observation sufficiently long to note the result of the further test, that is, two months after cessation of active treatment; of these, 7 have remained negative, whilst 8 have become positive again. These groups could be further split up into various classes according to the reactions to the test, but the numbers dealt with are too small to warrant such minutiæ, and only the broad facts shown in the three groupings above are of any value.

Two examples of groups B and C, which may be called the "retarded" groups, may be given as typical records of the way the W.R. behaves under treatment.

Example.

		1		2
First day of treatment.	W.R.	+ + +	......	+ + +
Complete course.				
Last day of treatment.	W.R.	+	......	+ + +
Follow-on course.				
End of F.O.C.* course,	W.R.	–	......	–
Two months' observation.				
End of this period.	W.R.	+	......	±
Second F.O.C.				
End of this course.	W.R.	–	......	–

* Follow-on course (F.O.C. = 0·3, 0·4, 0·6 grms. "606" at fortnightly intervals; 1 gr. Hg intramuscularly weekly).

All these records emphasise the fact that where a long interval has occurred between the onset of symptoms (or date of infection) and commencement of treatment—that is, where a positive W.R. has been long established—the latter can only temporarily be made negative. This opens up the difficult question of whether in late syphilis a positive W.R. reaction should necessitate active antisyphilitic treatment in every case, the answer to which question must be left open for the present. It is extremely difficult to determine the point at which active treatment must cease, and no general rule can as yet be formulated, but one frequently sees patients who have no sign or symptom of disease and who are clinically perfectly fit yet whose W.R. has returned to positive after two months' cessation of treatment. On the strength of such positivity a second full or modified F.O.C. course is given, producing a negative W.R., which, again, often becomes positive after a second period of "no treatment." Should such a patient receive a further course at this stage? Each case must be judged on its own merits, but it seems to me that too much stress can be placed on the W.R. in these cases, and the possibility of a permanent cure with a + W.R. must be kept in mind. It will be some years yet before this question can be definitely answered, and the best one can do at present is to keep the patients as far as possible under observation and on the appearance of any symptoms, however mild, to urge further active treatment.

Summary.

1. Primary cases are still in a grave minority of admissions.
2. Women do not seek advice in the primary stage, and steps should be taken to disseminate knowledge of the dangers of venereal disease and the advantages of the clinics amongst the female population.
3. Continuity of treatment is essential for cure, and discontinuity a possible danger.
4. Only where treatment is commenced before the W.R. has become positive can a cure be definitely promised.

A NOTE ON THE LATER HISTORY OF FOUR CASES OF TOTAL LARYNGECTOMY.

By Sir CHARTERS SYMONDS, K.B.E., C.B.,
CONSULTING SURGEON TO GUY'S HOSPITAL.

THERE are some operations for the removal of malignant disease of the tongue, pharynx, and larynx which leave such a condition of misery that they had better not have been performed. And moreover, if recurrence takes place, the suffering is far greater than if the disease had been left to run its course. This view was at one time taken of complete laryngectomy, against which it was further urged that, unable to speak, reduced, in fact, to dumbness, such a person could neither be useful nor find any joy in life. Experience has happily revised these views, and has shown that a man without his vocal apparatus can not only communicate with his fellows, but conduct a business involving a fair amount of conversation.

The object of the following note is to exhibit, as far as can be done on paper, the condition of four people, three men and one woman, who have lived in comfort and happiness, and done useful work for 8, 12, 15½, and 22 years respectively. One—the woman—has died of old age, and it will be seen that hers was the most extensive of all the operations. The importance, in view of possible recurrence, of estimating before operating the possibility of complete removal cannot be overestimated, especially where the pharynx is concerned. A primary pharyngeal cancer extending to the larynx cannot, in my experience, be removed with any prospect of eradication, and the after-condition is one of such misery as to render all such undertakings unwise and even unjustifiable. Particularly is this the case when a fixed and deep-seated mass of glands complicates the condition.

Record of Cases.

These records have a value also in showing the immunity that can be obtained even when the disease is extensive. These people can be understood of those around them by simple lip-movements and the vibration of such an amount of air as can be taken into the mouth and pharynx, while with the tube presently to be described the patient can be heard in a large room.

CASE 1.—Mrs. G. When seen in 1897 was wearing a tracheal tube and had complete laryngeal obstruction. The growth could be seen fungating upwards through the larynx, and there was also some external fullness. The entire larynx, together with a wide area of the pharynx, both lobes of the thyroid gland, with underlying lymphatics, were removed. On account of the wide removal of the pharynx there was some stenosis which for a time gave rise to difficult deglutition. This improved and she carried on her duties in her hotel for some years. Thyroid extract kept her free from the evil effects of hypothyroidism. Writing to me this year and recording her death at the age of 76, 22 years after operation, her son-in-law tells of her many years of usefulness and the happiness of her life. She was able to converse with her family and friends without any effort, and I have on several occasions spoken with her myself.

CASE 2.—J. B., aged 52, was admitted to Guy's Hospital with a growth nearly filling the larynx; it arose from the left side, and there was also some external fullness. On opening the larynx it was seen that only the anterior part of the right cord was free. On separating the skin from the left side with a view to partial laryngectomy it was found that the disease involved the muscles, and therefore complete removal was decided upon. The left lobe and the thyroid gland, together with subjacent lymphatics and parts of the infiltrated muscles, were removed in July, 1904. The wound healed rapidly without the escape of any saliva. This man, now aged 67, is an assessor and collector of taxes in a large area in Sussex. His duties necessitate a good deal of conversation, and he can make people hear and understand without the speaking-tube, which is necessary, however, when there is much noise or where others are deaf, or, again, when he attends a business meeting. J. B., it will be gathered, holds a responsible public position, and, I may add, is one of the happiest men I have ever met. Some years ago, at one of my clinical lectures, he was able to make everyone in a fairly large theatre hear quite distinctly with the aid of his tube. It is now 15½ years since his operation.

CASE 3.—Mr. McC. was a chemist attached to a commercial firm. In September, 1904, one cord was removed for suspected growth. In January, 1905, an operation was necessary on account of swelling, which proved to be due to some septic sutures. On April 24th, 1911, tracheotomy was performed, and on the 28th the larynx was again opened and some growth removed which was said not to be malignant. Recurrence taking place, tracheotomy became again necessary on June 15th of the same year. The late Sir Barclay Barron sent him to me in July, 1911. As the case appeared from the history to be doubtful, I removed a piece for examination; on this proving to be cancerous, on August 4th I removed the entire larynx, together with the lobe of the thyroid gland and subjacent lymphatics. Healing was by primary union, and the patient returned home on August 26th. A year later, a recurrence taking place in the lymphatics on the left side, on July 19th, 1912, I removed parts of the laryngeal and sterno-mastoid muscles, the internal jugular vein together with the lymphatic track down to the clavicle. From this he recovered rapidly, and returned home on the 27th of the same month. The seven years and more during which this man had laryngeal symptoms indicate the chronic form the growth assumed. He was seen by Sir Henry Butlin and others. The growth when I saw him blocked the larynx, and was of a hard cicatricial variety, partly due no doubt to the effect of the two operations. Reporting upon his speaking on Oct. 21st, 1919, Mr. McC., now aged 63, says that at first he could not sniff up the odours of the chemicals, but this he soon overcame. He says: "I only occasionally use the detachable tube for speaking, for I get along quite intelligibly with my intimate friends without it, while a Belgian friend assured me that on my reading Flemish to him he had not the slightest difficulty in understanding me. In the shops, local post office, &c., where I am known—if the place is quiet—I can do without the tube, and very often, when stopped by strangers asking for information, I unconsciously answer them without the tube, and I am surprised to find that I have been understood apparently quite well. The greatest difficulty I have is in making myself heard in a room where a number of people are talking." It will be gathered that this is a contented and happy man, and is a most useful person besides, for his wife, who suffers from bad health, has been dependent upon his care all these years. It is now eight years since the laryngectomy.

CASE 4.—Mr. T. Before his operation was manager of a bank, and was referred to me by Mr. Charles Heath and Mr. F. G. Harvey, in October, 1907. The growth involved the anterior three-fourths of the right cord and extended forward beyond view. Two years before he lost his voice suddenly for a time, and for a year he had been hoarse and obliged to discontinue his duties. The first laryngeal examination was that made by Mr. Heath. On Oct. 16th, 1907, the thyroid was split and the growth removed. Recurrence ensuing, complete laryngectomy was performed in February, 1908. Writing on Oct. 23rd, 1919, he says he is now 58; he manages shopping and ordinary conversation without the speaking-tube where he is known. In his own house he converses freely with his family, and used to call his children downstairs and also amuse them in his own way. He uses the speaking-tube with strangers. A medical friend who lately saw Mr. T. thinks his powers of speech quite marvellous. Mr. T. was obliged to resign his position, as naturally he could not continue the management of a public concern. Had he possessed a private business he might well have carried on his work. He has helped his wife in the management of a boarding house, and has added to the larder by fishing. It is now 12 years since the laryngectomy.

Remarks.

This brief account is sufficient to show that all the patients have lived in comparative comfort, and have been useful members of the family. The immunity has been largely due, no doubt, to the wide initial removal of structures external to the larynx.

The avoidance of preliminary tracheotomy certainly facilitates the operation, and, moreover, diminishes infection. The technique is also a matter of some importance, and may be described in a later communication.

As to the age at which laryngectomy may be safely undertaken I may add that in September, 1919, with Dr. C. F. Routh, of Southsea, I removed the entire larynx from a lady over 70 years of age. Tracheotomy being imminent for recurrent growth, and her voice almost gone, I thought she would be more comfortable without her larynx than with a necrosing growth, a tracheal tube, and at the same time without a voice. She recovered rapidly without any fistula, and suffered very little shock from the operation.

The Speaking Tube.

The tracheal tube is of large size, slightly conical, and fits the trachea closely; it has no inner tube. It is inserted as soon as the trachea is brought forward at the operation. Fitting into this is the special apparatus for speaking, which has a flap-valve admitting air on inspiration. This valve closes on expiration, the air passing through a tube attached to the upper surface and thence into a rubber tube, by which the stream of air is carried to the lips. A vulcanite piece fits into the distal end of the rubber tube, the end of which is flattened and the orifice narrowed so as to deliver a broad and forcible stream of air. The exit tube, to which the rubber is attached, should have as wide a diameter as possible, and should be a good inch from the shield so as to carry the rubber clear of the chin.

This is the simplest form of apparatus in use, and as will be gathered from the accounts given by the patients, enables them to speak clearly under almost all conditions. My own efforts to introduce a sounding reed into the tube have not been successful. I found the rubber valve of a motor cycle horn answered for a short time. The lips, however, very soon became glued together from the moisture and ceased to act. Those who have not observed the effect produced when the lip movements are made in the air current can hardly appreciate the clearness and loudness of the resulting utterance.

INTRAVENOUS INJECTION OF
TARTAR EMETIC IN GUINEA-WORM INFECTIONS.

BY J. W. S. MACFIE, M.B., CH.B., D.SC. EDIN.,
PATHOLOGIST, WEST AFRICAN MEDICAL STAFF, GOLD COAST.

IT is still the common practice among the natives of West Africa when infected with guinea-worm to wait until the worm protrudes, then seize it and attempt to pull it out. The usual result is that the worm is broken and troublesome abscesses follow which may render the patient unfit for active work for a long time. Sir Patrick Manson[1] has described the sequelæ in a graphic manner, which, as it could hardly be bettered, may be quoted in full.

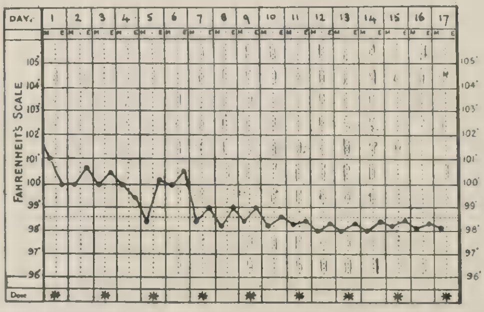
> "The consequences of this accident," he writes, "were often disastrous. Myriads of young escaped from the ruptured ends into the tissues, and violent inflammation and fever, followed by abscess and sloughing, ensued; weeks or months perhaps elapsed before the unhappy victims of this rough surgery were able to get about. Too often serious contractions and ankyloses from loss of tissue and inflammation and even death from septic trouble resulted."

Even if the worm is not broken the process of extracting it is a tedious one; care must be taken to protect it from injury all the time, and the traction should not be begun until the embryos are all discharged, an act which is only completed, according to Manson, in from 15 to 20 days. Any treatment that would kill the worm in situ and the embryos would therefore be valuable.

Record of Cases.

During the last few months of 1919 ten cases of guinea-worm infection in various stages were treated at Accra by means of intravenous injections of tartar emetic. All the patients were natives. I have pleasure in thanking Dr. A. J. R. O'Brien and Dr. M. W. Fraser for very kindly giving the injections to some of the patients, and for permitting me to watch the effects. The following are brief histories of the cases:—

CASE 1.—Native man, aged 20. Guinea-worm of the front of the left leg pointing about half-way between the knee and the ankle. Part of the worm had been pulled out and broken off, leaving the greater part still in the leg. On admission the leg was much swollen and very painful, the guinea-worm sore was suppurating, and the patient was suffering from fever. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, 7th, 9th, 11th, 13th, 15th, and 17th days—a total dose of 9 gr. The temperature of the patient came down to normal on the 7th day. On the 8th day the guinea-worm sore was still discharging slightly, but it healed up a few days later, and on the 17th day the patient was discharged from hospital apparently cured. No pieces of the worm had come away during treatment. Up to the 48th day after the cessation of treatment there had been no recurrence, and the scar where the guinea-worm had pointed remained firm and healthy.



Temperature chart of Case 1. An asterisk denotes each day on which was given an intravenous injection of 1 gr. of tartar emetic.

CASE 2.—Native man, aged 23. Guinea-worm of the left leg near the knee-cap. The head of the worm had just appeared at the opening in the skin. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, 7th, and 8th days—a total dose of 5 gr. The sore healed six days after the first injection, and the patient was discharged from hospital on the 9th day apparently cured. The worm did not come away. The patient, still apparently quite well, left Accra a fortnight later. A month (30 days) after the cessation of treatment he was seen at Koforidua, to which town he had been traced, by Dr. F. H. Storey, who very kindly sought him out and examined him for me. At this time the leg appeared to be perfectly sound, the guinea-worm scar was firmly healed, and no sign of the worm had been seen since leaving hospital.

CASE 3.—Native man, aged 30. Guinea-worm of the outer side of the left foot. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, 7th, 9th, and 11th days—a total dose of 6 gr. On the 10th day the sore appeared to be healing, but a week later it reopened, and living embryos were found in the discharge. Three days later the worm protruded from the sore and was secured; it was slowly wound out during the nine days following. In this case the treatment with antimony did not appear to have any beneficial action.

CASE 4.—Native man, aged 24. Guinea-worm of the calf of the right leg. Leg much swollen down to the ankle. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, and 8th days—a total dose of 4 gr. Already on the 3rd day the swelling of the leg had subsided considerably. The sore was healed by the 9th day, when the patient was discharged apparently cured. The guinea-worm did not come away. A week later (eight days after cessation of treatment) the patient was seen again; the guinea-worm scar was to all appearances soundly healed. Unfortunately, the man left Accra soon after this and was not seen at a later date.

CASE 5.—Native boy, age 15. Guinea-worm of the right leg, on the outer side of the calf. The presence of the worm had been observed two weeks earlier, but the sore had begun to discharge only on the day he was first seen. The discharge contained living embryos, but the guinea-worm itself was not visible. Intravenous injections of tartar emetic were given on the 1st, 3rd, 5th, 7th, 8th, and 10th days, $\frac{1}{2}$ gr. on the first occasion and 1 gr. thereafter—a total dose of $5\frac{1}{2}$ gr. On the 5th day the worm protruded, and the boy pulled out and broke off about 8 in. of it, leaving the rest of the worm in the leg. No abscess formed as a result of this unwise action, but the discharge continued until the 10th day, when it was very slight in amount and contained only a few motionless embryos. On the 13th day the sore appeared to have healed and a week later was in the same condition. Three weeks (21 days) after the cessation of treatment the scar appeared to be soundly healed.

CASE 6.—Native man, aged 47. Guinea-worm of the left leg, half-way between the heel and the middle of the calf. Two weeks earlier the worm had protruded, and a small piece of it had been pulled out and broken off, leaving the remainder still in the leg. When first seen the sore was granulating and discharging a watery fluid, in which, however, no embryos were found. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 4th, 6th, 8th, 10th, and 12th days—a total dose of 6 gr. The sore dried up in three or four days, and appeared to be completely healed on the 14th day, when the patient was discharged from hospital. When last seen, 12 days after the cessation of treatment, the scar appeared to be soundly healed.

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[1] Tropical Diseases, sixth edition, p. 775.

CASE 7.—Native man, aged 30. Guinea-worm of the outer side of the left foot. The worm, which had first shown itself nine days earlier, was pulled out on the day the patient was seen, and about 3 in. of it broken off, the remainder being left in the leg. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, 7th, 9th, and 11th days—a total dose of 6 gr. The case was complicated by an abscess near the heel of the foot, which had to be opened on the 5th day. On the 7th day a guinea-worm (not the same one as had pointed on the outer side of the foot) appeared in the incision made into the abscess cavity; this worm was wound out. The original guinea-worm sore was almost closed on the 9th day, but on the 14th day about 5 in. of the worm came away, and the sore was not completely healed over until the 19th day. Six days later—that is, 14 days after the cessation of treatment—the sore appeared to be soundly healed.

CASE 8.—Native boy, aged 18. Guinea-worm of the outer side of the left foot. The worm had first appeared four days earlier; none of it had come away. The discharge from the sore contained living embryos. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 5th, and 7th days—a total dose of 4 gr. After the fourth injection the boy ceased to attend for treatment, and it was found that he had left Accra and could not be traced. The ultimate effect of the treatment is therefore unknown, though he appeared to be doing well.

CASE 9.—Native man, aged 30. Guinea-worm of the inner side of the right foot. The foot was swollen and appeared to be forming an abscess; the sore was not open. A month earlier about 1 in. of the worm had been pulled out and broken off, and two weeks ago about 8 in. of it had been similarly removed. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, and 5th days, and on the 9th day, owing to a mistake, ½ gr.—a total dose of only 3½ gr. Almost immediately after the treatment was started the foot began to improve, and by the 10th day it appeared to be cured. When last seen, on the 13th day after cessation of treatment, the foot appeared to be sound.

CASE 10.—Native woman, aged 22. Guinea-worm of the inner aspect of the right foot, close to the ball of the great toe. The foot was much swollen and very painful. The worm had first appeared a week earlier, and 2 in. of it had been pulled out and broken off. The sore was discharging purulent matter. Intravenous injections of tartar emetic, 1 gr. each, were given on the 1st, 3rd, 6th, and 8th days—a total dose of 4 gr. Further treatment could not be given because the patient went away on the 9th day and was not seen again. At the time of the last injection the condition of the foot had improved considerably and the guinea-worm sore was almost closed.

Remarks.

In five of the ten cases the whole guinea-worm was still in the body at the time when treatment was begun. In two (Cases 2 and 4) the sore healed under treatment, and the worm did not come away; one of these cases was seen a month and one a week after the cessation of treatment, and appeared to be cured. In one (Case 5) part of the worm was pulled out and broken off during treatment; this case, nevertheless, did well and was apparently cured. In one (Case 3) the sore closed temporarily, but reopened, and the worm was eventually wound out. One (Case 8) was lost sight of at an early stage.

In five of the cases part of the guinea-worm had been pulled out and broken off before treatment was begun; all these cases showed signs of acute inflammation of the affected limb. The inflammation subsided and the guinea-worm sore healed in three of these cases—1, 6, and 9—the portions of the worm which had not been pulled out remaining in the body but causing no inconvenience. One (Case 7) was complicated by the presence of a suppurating wound, so that the effect of treatment was not clear. And one (Case 10) was lost sight of at an early stage.

In all but one (Case 3) of the cases treated intravenous injections of tartar emetic, even in the small doses given (3½ to 9 gr.), appeared to have a beneficial action. They appeared to relieve the inflammation caused by the breaking of the worm, to effect the healing of the sore without the previous removal of the worm, and to shorten the duration of the affection. In most of the cases it was impossible to continue the injections as long as had been intended, either because the patients had left Accra or because they themselves had concluded, perhaps prematurely, that they were cured and in no need of further treatment. In the cases which were longest under observation it appeared as if the antimony had killed the guinea-worm in the body and allowed it to be absorbed. If this was actually the case the treatment would also, it may be hoped, kill guinea-worms which had not yet reached the surface. This would be an important property, as patients often develop a succession of worms.

Conclusion.

The observations recorded here fall very far short of a thorough test of the treatment. The total number of cases is exceedingly small, the appropriate dose of antimony has not yet been determined, and in the important matter of after-treatment observation they are conspicuously defective.

Accra is provided with an excellent pipe-borne water-supply, and guinea-worms are fortunately rare. The ten cases dealt with were collected one by one, only with the greatest difficulty. The occasional cases that are met with at Accra are, for the most part, in strangers and visitors to the town. Such patients are unsuitable subjects for the trial of a new treatment, because their attendance is irregular, and they can seldom be kept under observation after they are apparently cured. There are many more suitable places for the study of guinea-worm infections, and I can only hope that the observations recorded in this paper may lead to a full investigation in them of the therapeutic value of antimony.

The Laboratory, Accra.

A CASE OF
ABNORMAL DESCENT OF THE TESTICLE.

BY JOHN A. C. MACEWEN, M.B., C.M. GLASG.,
SURGEON TO THE GLASGOW DISTRICT HOSPITALS; HONORARY SURGEON, ERSKINE HOSPITAL FOR THE LIMBLESS; ASSISTANT SURGEON, GLASGOW ROYAL INFIRMARY.

THE following case, in which the testicle descended through the crural canal into the scrotum, the inguinal canal being absent and a bubonocele complicating the picture, is interesting in that I have not been able to find reference to a similar one in the literature at my disposal.

The patient, a well-developed boy of 2, was admitted to Mr. T. Kay's wards in the Royal Infirmary suffering from threatened strangulation of a right bubonocele. The bowel slipped back without manipulation after admission, and I operated on Dec. 13th with a view to performing an ordinary radical cure of an inguinal hernia. Mr. Kay, who kindly gives me permission to report the case, had been operating on another patient, but saw the condition, and Dr. J. Dunbar, who was assisting me, confirmed the various points.

On exposing the external oblique the external ring could not be made out, and the cord was therefore picked up and isolated, when it was found to run into the abdomen through an aperture which did not admit the little finger. This aperture was situated below Poupart's ligament, and to the outer side of the spine of the pubes. The tip of the little finger, inserted with difficulty at a later stage, made out what appeared to be Gimbernat's ligament to the inner side, but it did not present the usual sharp margin. Below was the bone, covered with fascia, while on the outer side was a firm structure which was probably a misplaced reflexion from Poupart to the pubes, described in some books as separating the muscular from the vascular compartment—the ilio-pectineal band.

On applying gentle traction on the cord the scrotum became invaginated and the testicle came into view. The testicle was normal, and its attachment to the base of the scrotum undoubted. The hernial sac lay among the structures of the cord, and the vas was adherent to but separable from it. As the sac terminated about half an inch above the testicle the hernia was not of a congenital or infantile type. On opening the sac a soft yellow mass was found projecting into its interior, and springing from the outer and posterior wall of the sac. As its surface was glossy it was apparently covered with peritoneum, and it appeared to be embedded in the sac wall. Traction failed to bring this structure down to any appreciable extent, and hence its nature and connexions could not be determined. As it was not adherent to the tissues outside the sac, and presented no obstacle to introduction of the sac as a pad on the deep surface of Poupart, further examination was deemed inadmissible. I have seen a similar structure in the sac of a sliding hernia, and it is probable that the termination of the appendix or cæcum was close at hand, but this is surmise, as these parts were looked for but not found. If it was a portion of the plica vascularis it was separated entirely from the testicle, and terminated about one and a half inches above it.

The conjoined tendon was closely applied to the posterior surface of the external oblique and came down to, and appeared to fuse with, Poupart's ligament. There was no arching of the fibres of the conjoined, such as is normally present, and hence the transversalis fascia was not exposed to view.

The operation as such presented no points of special interest, and the patient is doing well. The testicle on the left side was very small, and was situated about the upper end of the scrotum. It was difficult to determine the route taken by the cord, but the femoral ring was certainly unduly large.

The condition here reported is apparently a very rare one, as Eccles, in his "Imperfect Descent of the Testicle," 1903, says: "Recent dissections during a radical operation upon the accompanying hernia have not shown the cord lying in the femoral ring, but always in the superficial abdominal ring."

SYPHILITIC SPONDYLITIS:

NEGATIVE WASSERMANN REACTION.

By S. C. EVANS, CH.M. EDIN.,
LIEUTENANT-COLONEL, I.M.S.;
AND
C. F. MARSHALL, M.D. VICT., F.R.C.S. ENG.

SYPHILITIC spondylitis is a rare condition. Verneuil[1] appears to have been the first to draw attention to it in 1879, and Fournier[2] the first to describe a case in detail about the same time. Previous cases were probably regarded as tuberculous. In Fournier's case the lumbar vertebræ were affected, the patient died of cachexia and general dropsy, and the lesions found at the autopsy were as follows: Sclerosing osteitis with purulent and caseous infiltration, almost complete destruction of one of the intervertebral cartilages, a large cavity in the lumbar spine, double psoas abscess, a gumma in the fourth left lumbar nerve, and atrophy of the gluteal muscles. The patient also had multiple gummas in the subcutaneous tissue and muscles, syphilitic orchitis, and cirrhosis of the liver and kidneys.

The case we report resembles Fournier's in affecting the same vertebræ, but differs in the absence of cavitation of the vertebræ, abscess formation, and muscular atrophy. In our case the process of new bone formation predominated over bony destruction. This is characteristic of most cases of syphilitic spondylitis and distinguishes them from tuberculous disease.

The patient, a man now aged 38, contracted syphilis in 1905. Treatment by oral administration of mercury was commenced during the primary period and continued for two years. Secondary symptoms were absent except for mild sore-throat. In 1911 he went through a six months' course of treatment, consisting of weekly injections of mercurial cream and iodide of potassium in doses of 15 up to 60 gr. daily as a precautionary measure previous to marriage, although no symptoms had occurred since 1905. In 1914 he began to suffer from pain and stiffness in the back, which was diagnosed as lumbago. As this did not improve with ordinary treatment, a Wassermann test was made, and this was negative. In 1916 the lumbar pain became worse, especially on rising from a sitting position, and he complained of pain down the left thigh. At this time nodes developed on the inner end of the right clavicle and on the inner malleolus of the right ankle, and he suffered from severe headaches, mental irritability, and insomnia. Except for the node on the clavicle, which persisted, all these symptoms yielded to treatment with large doses of iodide of potassium and mercurial inunction.

The Wassermann reaction in 1917 was again negative. He then had a course of six intravenous injections of salvarsan at monthly intervals, after which his general health improved and the lumbar pain disappeared.

However, after the fourth salvarsan injection he had sudden acute pain in the right loin resembling renal colic. A radiogram taken at this time was negative for renal calculus, but revealed lesions of the lumbar spine consisting of pronounced bulging of the outline at the level of the second and third lumbar vertebræ on the right side and at the level of the third and fourth vertebræ on the left side. These swellings were due to new bone formation on each side of the intervertebral cartilages, the contiguous vertebræ being thereby united by bony deposit bridging over the cartilages, thus accounting for the rigidity of the lumbar spine.

The present condition is as follows: General health good, although there is some thickening of the radial arteries. The lumbar spine is quite rigid, but painless. Remains of node on clavicle still present. Reflexes normal. No paresis or atrophy of muscles. Wassermann reaction negative.

Remarks.

Noteworthy features of this case are the rarity of the lesion, its occurrence in spite of treatment, and the persistently negative Wassermann reaction, the first test being made when the vertebral lesions were in active development. All tests were made at reliable institutions, the first and second in Government laboratories in India and the third in a well-known London hospital. This case would therefore appear to serve as a warning against placing too much reliance on the Wassermann reaction, both as regards diagnosis and prognosis.

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[1] Gazette des Hôpitaux, 1879.

[2] Annales de Derm. et de Syph., 1881.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

EXHIBITION OF CASES.

A MEETING of this section of the Royal Society of Medicine was held on March 12th, Sir ANTHONY BOWLBY, the President, being in the chair.

Traumatic Aneurysmal Varix.

Dr. W. G. SPENCER showed a case of Traumatic Aneurysmal Varix between the Cavernous Sinus and the End of the Internal Carotid Artery on the Left Side. The patient, aged 26, whilst on duty in France, was kicked by a horse on the left side of the head in February, 1918. He was unconscious for a time, but did not bleed from his ear or nose. After recovering consciousness he continued mentally dull, occasionally vomited, and complained of headache. Two weeks later clear fluid under excess of pressure was drawn off by lumbar puncture. Increasing œdema of the eyelids was noted early in March and he was transferred to hospital with the diagnosis of fractured base of the skull. No sign of fracture could be found by X ray examination. The most obvious features were venous engorgement of both upper eyelids, especially the left, and proptosis, which was also most marked on the left side. There were chemosis of the ocular conjunctiva of the left eye and paralysis of the left external rectus. The man complained of a continuous rushing noise in the head on the left side. A loud systolic souffle was heard over the forehead; it was loudest over the upper eyelids and eyeballs, but could be heard more faintly over the left temporal region, the face, and along the line of the carotid in the neck. When the left carotid was compressed the souffle was not heard.

The left common carotid was ligatured at the level of the cricoid cartilage seven weeks after the accident. On tightening the ligature the souffle disappeared, but was soon heard again at the root of the nose and more faintly over the upper eyelids. The venous engorgement of the eyelids rapidly diminished. There was no optic neuritis, but complete and permanent paralysis of the left external rectus. Afterwards he was unable to do more than light work. Headaches were very variable. The rushing noise gradually returned; when he pressed his left eyeball outwards the noise seemed to stop for a moment. When admitted to hospital at the beginning of the year the souffle was heard at the root of the nose and less loudly over the forehead. It could also be heard, more faintly, in the right infra-orbital region, but not over the left temporal and facial region as before the first operation.

The right carotid artery was ligatured in January, 22½ months after the left. Before tightening the ligature his head was lowered to the level of the trunk, and he was let out somewhat from the anæsthetic. The tightening of the ligatures caused deep anæsthesia, with stertorous breathing and contracted pupils. He was kept in bed with the head horizontal; he fainted several times when being moved or dressed, and did not get up for six weeks. Since the second operation he had not heard a noise unless his head was sideways on the pillow. He complained of headache at irregular times and the usual remedies did not relieve him.

Mr. Spencer said that he presumed that in this case there was a pinhole communication between the left cavernous sinus and the dilated end of the left internal carotid. The anterior communicating and the intracranial part of the ophthalmic arteries might also be dilated. There was no positive sign of any aneurysmal sac formation, apart from the arterial dilatation, nor any sign of thrombosis of the cavernous sinus. He hoped that the bilateral ligation would control a tendency to further dilatation; the most marked effect had been the relief to compression of the left cavernous sinus.

The PRESIDENT said that it was difficult to make a prognosis in such cases, for some got well, others remained in statu quo, and others got worse. He instanced the case of a man, wounded in the region of the zygoma in the South African war, who applied for treatment on account of the intensity of the noise in his head. As the result of keeping him quiet in bed in the course of a month or two he was so much better that he no longer desired an operation. Gradual recovery resulted in a spontaneous cure in about two years. In another instance a man who had been riding a bicycle was found unconscious on the road at some distance from his bicycle. He remained unconscious for several days. In his case, also, the condition often termed pulsating exophthalmos developed. He was an elderly man with thickened arteries, and operation seemed inadvisable. He also got perfectly well in two years. There was no doubt that in young people an operation was indicated to cure the patient. This was clearly so in Mr. Spencer's case, whom he congratulated upon its success.

Microcephalia: Craniotomy Performed.

Mr. SPENCER also showed Two Microcephalic Sisters, the children of first cousins, shortly after craniotomy. The parents were both healthy, aged between 20 and 25, and except that they were first cousins there was nothing in their family history which bore on the condition of their children. They were anxious that something should be tried, and Mr. Spencer, at their request, after a consideration of Horsley's first case, decided to operate. The children, one aged 3 years and the other 1½ years, were in good general health. Except for the calvarium, deficient hair, and general dwarfing, they presented no deformity. They had all their teeth, and these were practically perfect. The development of the calvarium had been arrested so as to give them the repellant aspect of anthropoid apes. The elder was unable to walk more than a few steps; she could not feed herself, was dirty in her habits, could say nothing except "Bad"; could only sit up, toss her arms, and fumble with toys, and did not otherwise amuse herself; had violent fits of temper, in which she bit herself and threw herself backwards so as to strike the back of her head. Her hair was very scanty. The younger child was unable to walk or stand, could only say "Bad" and "Mum," was dirty in her habits, did not play or amuse herself but merely tossed her arms, was uncertain in temper and unable to feed herself, had no idea of obedience, and had no hair on her head. The operation was performed on the older child at one sitting and caused no perceptible shock. On the younger child it was done in two stages at a fortnight's interval. There was little shock after the first and more after the second. At the operation a strip of bone about 3 cm. in breadth was removed from each parietal bone, and a strip about 1 cm. in width from the frontal bone a little in front of the coronal suture. Both skulls were thin, like those of a baby under a year. The lines of the sutures were occupied by ridges of soft bone. There was nothing abnormal about the exposed dura mater. The intracranial pressure was not above normal. The children were now in the same condition as before the operation; the gaps made in the skull showed no signs of intracranial tension. In the region of the left parietal eminence of the younger child the brain could be felt protruding and pulsating under the scalp.

Hysterical Manifestations.

Dr. HILDRED CARLILL showed a young woman with Hysterical Manifestations in the Eye and Stomach. There was a history of "vomiting" since 1915 and after every meal for nine months. For three months she had noticed that her eyes were insensitive. The "vomiting" was regurgitation merely, unaccompanied by the usual signs of vomiting, and could be produced at will. When seen for the first time the ocular conjunctivæ were insensitive, as was the corneal conjunctiva in one eye; the palpebral conjunctivæ were also insensitive. The corneal reflex was present.

Dr. F. PARKES WEBER said that he regarded the case as an example of acquired merycism or human rumination. The patient had acquired the power of bringing food from the stomach back into the mouth, and could then either swallow it again or expel it. If she expelled it the act constituted a kind of "voluntary vomiting," which she could make use of to excite sympathy or interest in her case. (Dr. Carlill had said that she had likewise produced artificial skin trouble on her legs.) With regard to the eyes, he (Dr. Parkes Weber) had found that she closed the eyelids sharply when he touched the corneal conjunctiva.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

Exhibition of Cases.

A MEETING of this section of the Royal Society of Medicine was held on March 2nd, Mr. J. Muirhead Little, the President, being in the chair, when cases were exhibited.

Osteosclerosis of the Femur.

Mr. Laming Evans showed a case of Osteosclerosis of the Femur in a man aged 34. He had had pain in the left hip, thigh, and knee since September, 1916, which had continued without intermission. He had been treated by hot air, electricity, and baths both in London and at Buxton for 18 months. Six injections of salvarsan had been given on the chance that the case was syphilitic, although a Wassermann test had always proved negative. He complained of continuous pain in the left thigh both by day and night, for which slight relief was afforded by very large doses of aspirin. The left thigh showed three-quarters of an inch of atrophy as compared with the right. A slight thickening of the left femur could be felt at the junction of the upper and middle thirds. Local heat, redness, or swelling of the soft parts was absent. X ray examination showed an osteosclerosis of the shaft of the femur involving the whole circumference of the shaft, but more marked upon the median segment, and extending through the middle and upper thirds as far as the lesser trochanter. The outlines of the sclerosed bone were smooth and the internal structure was well defined. The medullary canal was not encroached upon, and there was no evidence of necrosis or chronic abscess. The treatment suggested was exposure of the femur on its median surface, and a longitudinal linear osteotomy exposing the medullary cavity throughout the length of the sclerosed area.

New Growth Formation.

Mr. Evans also showed the X ray photographs of the left thigh of a man, aged 43, who had complained of pain in this position in February, 1919, together with swelling, which started just above the left knee and had gradually increased in circumference and spread upwards. Old-standing scars in the region of the right iliac bone suggested osteomyelitis in infancy. The right hip-joint was freely movable. In January, 1920, when he came under observation, he said that he had lost 6 st. in the preceding 12 months. The left thigh showed a hard fusiform enlargement in the lower three-fourths, involving the femur. X ray examination showed a fusiform thickening of the middle third of the femur, with spicules of bone projecting obliquely from the shaft. In February an incision on the inner side of the middle of the thigh exposed a cavity containing semi-solid gelatinous material. At the bottom of the cavity the periosteum was thickened and studded with bony spicules. An incision on the outer side of the thigh exposed a growth formation three-quarters of an inch thick attached to, and growing from, the periosteum. A section of this growth was shown. A report of the semi-solid material stated that a few streptococci and staphylococci were found, but the specimen was almost sterile. The tissue cells present were almost entirely lymphocytes, together with a few endothelial cells. The specimen appeared to be an inflammatory exudate.

Mr. R. C. Elmslie said that there were three points which made him think that the case was not one of sarcoma: (1) in the microscopic section there was no evidence of the presence of sarcomatous tissue, but only the signs of infiltration and chronic inflammation; (2) in one skiagram there was definite curvature of the femur; and (3) in one there was an appearance suggestive of the presence of a long sequestrum. He thought the condition was one of chronic osteomyelitis, and that, for some reason, the periosteum had taken on the spiky form associated with sarcoma.

Mr. V. Warren Low agreed as to the probable presence of a sequestrum.

Achondroplasia in a Girl.

Dr. W. T. Gordon Pugh showed a case of Achondroplasia in a girl, aged 7 years, who was 35½ in. high, the height of a child of 3½ years. She presented the characteristics usually found—the stunted arms and legs contrasting with a trunk of normal length, the short fat "trident" hand with digits all nearly of the same length and showing the deviation of the ring from the middle finger, and the dorso-lumbar kyphosis closely resembling that found in rickets. The clavicles, sternum, and ribs were, as usual, unaffected; the child was bright and fairly intelligent; skin, hair, and thyroid appeared normal, and the Wassermann reaction was negative. The stunted bones of the limbs had broad ends, the shafts were not abnormally bent, and there was full movement of all joints except the elbows. These joints could not be fully extended by about 30°, and there was cubitus valgus, the deviation outwards of the forearms being about 35°. Her measurements in inches, as compared with those (in brackets) of a control child of the same age, were: height, 35½ (43); from the base of skull to infragluteal fold, 19½ (19½); from infragluteal fold to sole, 10 (19½); from acromion to tip of fingers, 13 (19½); humerus, 5 (7¾); ulna, 5 (6¼); femur, 6 (10½); tibia, 5¼ (9¼); between anterior superior spines, 6 (6¼); girth of skull 21 (20). X ray photographs showed that the bone in the epiphyses was less than normal, whilst the diaphyses showed a slight cupping indicating that the periosteal bone had not been completed by the addition of enchondral bone, which the epiphyses normally deposits at the end of the diaphyses. The ætiology of the condition appeared to be still unsettled. By some it had been thought to be simply a biological variation similar to that which exists in certain breeds of dogs. It had been suggested that it might be due to under-secretion by the pituitary, thyroid, and thymus, and over-secretion by the interstitial glands. Jansen, of Leiden, eight years ago, produced evidence that this disturbance in the development of the skeleton might have resulted from pressure on the fœtus at a very early period, from the third to the sixth week, by an amnion, either too small or over-distended with fluid. In respect of treatment he suggested that, having regard to the fact that the pituitary body had been found reduced in size in severe cases, the prolonged administration of small doses of pituitary gland might possibly stimulate growth, although it would never cure the achondroplasia. He did not know whether this had been tried. Recently Professor Arthur Keith had declared that although experiments on the thyroid had failed to produce achondroplasia, and microscopical examination had revealed no change in the thyroid gland, these cases might safely be grouped as a growth disturbance due mainly to alteration in some of the functions of the thyroid body. It was generally agreed, however, that thyroid medication had no influence on their growth.

Exostosis of the Radius.

Dr. Pugh also showed a case of Exostosis of the Radius in a boy aged 15 years, the exostosis being about an inch and a half wide and raised about half an inch, arising from the lower end of the radius just above the epiphyseal line. The boy said that he had noticed it about two years and thought that it had grown recently, especially since he knocked it a few weeks ago. It gave him no trouble at present, but as he wished to enter the navy it would probably be advisable to remove it.

Mid-carpal Fracture Dislocation.

Mr. R. C. Elmslie showed a case of Mid-carpal Fracture Dislocation in a man, aged 38, who had had an accident to his left hand in January, 1916. He was in the hold of a ship, and a heavy sling swung against him, threatening to pin him against the side of the hold. He protected himself by holding out his hands and knee. The sling forced the left wrist into a hyperextended position. The condition was treated in a military hospital as a fracture. The hand recovered to a certain extent, but the condition had for a long time been stationary. The styloid processes were at the normal level: on the posterior surface of the wrist the ends of the forearm bones were less prominent than on the right side, and the posterior surface of the carpus was more prominent. The wrist was usually held in a straight line with the forearm, and only about 30° of flexion, and no extension was possible from this; no abduction or adduction was possible. X rays showed a fracture of the scaphoid and semilunar, one-half of the scaphoid remaining in apposition with the radius; the rest of the carpus was dislocated backwards. The styloid processes of both radius and ulna had been fractured. He proposed to remove half of the scaphoid fractured and the semilunar.

Cyst of the Tibia.

Mr. ELMSLIE also showed a case of Cyst of the Tibia in a boy aged 10 years. About a year ago the patient fell, striking the left knee on the ground. He walked home, and the same night a swelling appeared which implicated the whole of the knee, accompanied by much pain. A week later he was seen by a doctor, who put on a bandage. The patient was not confined to bed at all. After the application of the bandage the swelling decreased, but had never disappeared. There had been some pain ever since, but no hindrance to walking, except when he had been using the legs for some time. The boy was healthy, and had always been so. There were a few palpable glands in the neck. There was no wasting of the lower limbs, and the reflexes were normal. In the left knee region there was a rounded, hard, semi-spherical swelling 2 in. in diameter, situated on the internal surface of the head of the tibia. The skin moved freely over it, and there were no signs of inflammation. At present there appeared to be no implication of the knee-joint. There was no limitation of movements, no tenderness, no shortening, and no other abnormal bony condition. He proposed to open the cavity, curette it, and crush the wall.—In answer to a question by Mr. P. B. ROTH, Mr. Elmslie said that in cases of cysts of the femur, humerus, and tibia upon which he had operated healing had taken place satisfactorily, the bone around had sclerosed, but a slight cystic appearance had remained for years. In no case was there further growth or expansion or recurrence. Pain was relieved.

Mr. ELMSLIE also showed a case of Congenital Absence of the Tibiæ in a girl aged 13 years and 8 months. The deformity was congenital, and no treatment had so far been carried out. The tibia was absent in both the lower limbs, the patella and the condyles of the femur being apparently normal. The head of the fibula on either side was large and articulated with the outer side of the external condyle. The feet were in severe talipes varus; on the right there were four toes, with a deep cleft between the first and second, as in a lobster-claw deformity. On the left side the great toe was absent. The child got about well on the knees. He proposed to amputate at the knee on each side, and would present a further report on the anatomy of the parts removed at a later meeting.

Mr. ELMSLIE also showed a case of Birth Palsy with Dislocation of the Head of the Radius. The patient, a girl aged 15½ years, had a deformity of her right arm since birth. She had been born in hospital and both arms were said to have been injured. No treatment appeared to have been carried out. The arm was held a little away from the side, with the elbow flexed and the forearm supinated. Movements of abduction and rotation at the shoulder were restricted. Full extension of the elbow was impossible, and pronation of the forearm was also absent. Active use was present in all the muscles of the limb except the pronator radii teres, but the deltoid, triceps, and extensors of the wrist and fingers were weak. The muscles all reacted to a faradic current, including the pronator radii teres. An X ray photograph showed a forward subluxation of the head of the radius and a great prominence in front of the tuberosity. The chief interest of the case consisted in the supination deformity and in the presence of the subluxation of the head of the radius. He did not think that excision of the head of the radius was advisable, as it would probably weaken the arm, and the girl got very good use out of the hand with the condition as at present. He proposed to limit treatment to manipulation and exercises for the joints and electrical treatment of the weakened muscles.

After referring to the rarity of supinator birth deformity, Mr. Elmslie said that it was probably due in this case to subluxation of the head of the radius and a consequent tightening of the biceps muscle, which held the head of the radius in that position during growth. It was not due to any weakness of the pronator radii teres.

A Case for Diagnosis.

Mr. P. B. ROTH showed a case for diagnosis. It was that of a boy, aged 4 years, with waddling gait. He had never walked properly, but always with the toes turned out, rocking from side to side with each step. He had previously been treated for a time with long external splints, but these had not been able to keep the legs from turning. He had suffered from rickets, as evidenced by slightly curved tibiæ and enlarged lower radial epiphyses. The gait was characteristic of double congenital dislocation of the hip, but the radiogram showed no abnormality of outline of bones to suggest this condition. When lying supine abduction of each thigh was limited to 45°. The thighs were kept rotated out 80°, but could be turned so as to make the toes point straight up, using moderate force. Mr. Roth said that he had since been informed by Dr. Martin Berry that in all probability this was a case of torsion of the femoral shaft.

Dupuytren's Contraction.

Mr. ROTH also gave a report on the case of Dupuytren's Contraction in a man, aged 31, whom he had shown before the section in November last. The ring finger of the left hand was the finger involved. He had operated on him by Adams's subcutaneous method. Under chloroform eight or nine punctures were made into proximal parts of the tense fascia with a fine tenotome, and the fascia divided at each part by turning the blade of the tenotome down into the palm. Traction was simultaneously made on the flexed finger, and, as each part was divided, the finger gradually straightened until it lay completely extended. A straight splint was applied and kept on for a week, after which it was removed during the day, but applied for a further two weeks at night. The result had been a complete cure, with full power of extension and flexion.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

An ordinary meeting of this section was held on March 3rd, Mr. W. T. HOLMES SPICER, the President, being in the chair.

Iridotomy.

Mr. J. HERBERT PARSONS showed a patient who last year came up for extraction of an immature cataract; the opacity was chiefly in the posterior cortex. He did an ordinary extraction, with a peripheral button-hole, and a tiny hole in the periphery of the iris afterwards. The patient did well, and went out in ten days with the eye quiet. A week later, however, she came with a hypopyon and a flaring iritis, which he attributed to endogenous inflammation. He took her in and treated her in the ordinary way, and the pupil became very small, in spite of atropine and hot bathing, and was later completely blocked. He described the method of iridotomy he carried out.—Mr. M. S. MAYOU confirmed Mr. Parsons's account. He first saw the operation done by Mr. McHardy many years ago.

The PRESIDENT and Mr. TREACHER COLLINS had also performed the operation.

Sensitive Vestibular Nystagmus.

Mr. LESLIE PATON exhibited a patient in whom Nystagmus of Vestibular Origin was very easily excited —namely, by pressing wool into her ear. A fistula existed from the vestibular region into the middle ear. She had choroiditis and other visual defects, but he did not bring her because of those. He also showed a patient with Blue-dotted Cataracts. In cases of this kind which had been reported the vision was but little interfered with, and the ophthalmoscope showed that not much opacity was evident. With correction this patient's vision was 6/12 in one eye and 6/9 in the other. Probably the blue tinge was not due to the presence of pigment, but to a refraction peculiarity. He quoted Lord Rayleigh's explanation.—Mr. C. Wray said he had seen several cases in parents and children. —Mr. N. Bishop Harman spoke of cases in which the presence of such blue striæ and dots was associated with night-blindness.

Mr. M. S. Mayou showed a case of Gummata of the Eyelid which began on the tarsus. The erosion of the eyelid had been quite rapid, and could be seen to progress even while she was awaiting the Wassermann report. Salvarsan had produced great improvement in a short time.

Mr. W. H. McMullen exhibited a case of Congenital Aniridia. He brought it forward because it was associated with some signs of glaucoma. It was very difficult to see the discs, but they appeared to be cupped, and on palpation the ocular tension seemed to be increased. He asked for views as to the operation most suitable.—Some speakers favoured cyclo-dialysis in preference to trephining.

Mr. McMullen also showed a case of Translucent Cyst in the outer part of the orbital margin, firmly adherent to the roof of the orbit and loosely attached to the tarsus.

Sir William Lister referred to an interesting case of his own in which a cyst of the lacrymal gland went behind the globe. The patient, a boy, came with proptosis of the left eye, which became worse and pushed the eye downwards and inwards. He did Kronlein's operation, and having removed the triangular portion of bone he made a horizontal incision through the periosteum, and, having separated the orbital fat, encountered a very black tumour. He was proceeding to separate this when it suddenly burst and the contents disappeared. It was mixed up with the lacrymal gland and the external rectus. Healing occurred by first intention, and the vision, which had gone down to 6/24 with marked papillœdema, returned to 6/6, and there was only slight contraction of the field remaining.—Mr. Wray suggested that dissection would be much easier if part of the cyst contents were evacuated by preliminary puncture and then a ligature passed round it.—Mr. H. R. Jeremy referred to a case in which he removed a cyst from the inner side of the upper lid, and the microscopist found it was lined with squamous epithelium. He regarded it as a transplantation cyst, and suggested that that might be the nature of Mr. McMullen's case.—Mr. Leslie Paton said Mr. Jeremy removed a cyst of Krause's gland, and in such cases it was not advisable to puncture before removal if it could be got away without.

Cards for Testing Colour Vision.

Dr. F. W. Edridge-Green showed, by means of the epidiascope, a set of cards for testing varieties of colour vision by natural light. The set contained neither letters, figures, nor any easily identifiable geometric form to assist any candidate who wished to escape the test. The exhibitor explained fully the scheme for detecting trichromics, tetrachromics, and pentachromics.—Mr. Parsons said that the scheme was most ingenious, but pointed out how difficult it had always been to ensure, in printed colour-test charts, that successive editions, or even separate copies, should contain exactly identical shades of colour, owing to the pigment changes in the lithographic stone.

Cobalt Glass for Detecting Errors of Refraction.

Mr. Paton read a short note on the Use of Cobalt Glass for the Detection of Errors of Refraction, especially small degrees of astigmatism. He demonstrated its use.—Mr. Ernest Clarke, while agreeing that this particular kind of glass showed that the violet rays were more refracted than the red, did not think it filled any very practical purpose for the ophthalmologist.—Mr. Bishop Harman agreed with Mr. Clarke, and thought that the introduction of this kind of glass would cause some sensitive patients to worry needlessly over trivial astigmatic errors.

Mr. Charles Goulden read a paper on the Treatment of Prolapse of the Iris following Accidental Perforating Wounds, with a Note on the Removal of Non-magnetic Foreign Bodies from the Anterior Chamber, which was considered to be helpful by the President and Sir William Lister.

SECTION OF LARYNGOLOGY.

Exhibition of Cases and Specimens.

A meeting of this section of the Royal Society of Medicine was held on March 5th, under the presidency of Mr. E. B. Waggett.

The Laryngostroboscope.

Dr. E. W. Scripture submitted a description of the laryngostroboscope. This consists of a disc with 40 slits mounted on the axle of an electric motor. The light from an arc lamp is concentrated by condenser lenses, so that it passes at a focus through the slits. The beam is caught by another lens, it falls on a flat head-mirror, and is reflected by the throat-mirror to a focus at the glottis. Dr. Scripture said he had observed that for the chest register the vibrations take place along the entire glottis: for the head register the cartilaginous glottis is closed and the vibrations take place along the muscular glottis only.

Frontal Sinus Cases.

The meeting discussed a number of frontal sinus cases, shown by Mr. Herbert Tilley, Mr. Lawson Whale, Dr. James Donelan, and Mr. Norman Patterson, the debate turning chiefly on the respective merits of the intranasal as compared with the extranasal route.—Dr. Dan McKenzie said his experience of the intranasal operation had been, to a considerable extent, successful; it was not very severe to the patient, and gave relief from the acute symptoms. But he had had one death following it on account of osteomyelitis.

The President pointed out that the success of the internal operation depended on the anatomy of the part, and hence a stereoscopic skiagram was essential before arriving at a decision concerning the route to be taken. He had not yet had osteomyelitis develop in a case, but, like others, he went in terror of it. At the outer angle, the dangerous part, there should be a drainage-tube, and it should be retained five or six days. In the absence of a good skiagram, he advocated the use of the Doyen perforator in the external operation, then if the dura were encountered, the operation was robbed of danger.—Mr. Cyril Horsford related two cases in which he had serious complications and the measures by which he successfully combated the danger.—Mr. J. F. O'Malley considered that both the external and the internal operations had their place in frontal sinus surgery, and the exercise of care would enable a decision to be made.

Radium in Malignant Disease.

Mr. Douglas Harmer and Dr. N. S. Finzi showed a series of patients whose malignant disease in various situations had been treated by radium. In one of sarcoma of tonsil the radium had caused the tumour almost to disappear. In one of endothelioma of pharynx radium brought about a great reduction in size, and after a somewhat severe surgical operation X rays were administered. In a case of mixed parotid type tumour of the palate the success from the radium was moderate. An endothelioma of the palate was caused by radium to shrink rapidly. A case of what appeared to be carcinoma of the orbit was not improved by the radium imbedded. The last was one of a large fibro-angeioma of the nasopharynx. There was rapid shrinking of the growth following radium application, but it was followed by extensive necrosis of the maxilla and perforation of the hard palate.

Mr. W. M. Mollison showed a patient with Lupus of the Palate. The Wassermann reaction was positive; no tubercle bacilli were found in the sputum.—Mr. Harmer said he had just cured in a month a similar case by the method of giving large doses of iodide of potassium and at the same time ionising the palate.

Other interesting cases were shown.

MEDICAL SOCIETY OF LONDON.

HEAT HYPERPYREXIA.

A MEETING of this society was held on March 8th, Mr. V. WARREN LOW, the President, being in the chair, when papers were read on Heat Hyperpyrexia.

Dr. W. H. WILLCOX spoke of the clinical aspect of the condition. An abstract of his paper appears in another part of our present issue.

Physiological Aspect of Heat-stroke.

Professor LEONARD HILL spoke from the physiological aspect. He said that heat-stroke was due to rise of body temperature to a height incompatible with life. The ultra-microscope showed the aggregation of particles in cell protoplasm increasing with the temperature. The heat-regulating mechanism might fail to control the body temperature under the atmospheric conditions or become exhausted. Sun-stroke was a form of heat-stroke, the absorption of the sun's energy by clothes or dry skin helping greatly to heat the body. The wet skin kept off sun-heat, this being dissipated by reflection and evaporation. The sun tempered by a cooling breeze burned the untanned skin, but could not cause sun-stroke. Men should become tanned so that they could wear thin cotton clothes open at neck, arm, and knee. Diet was of importance in the tropics, proteins with high heating power required to be reduced; temperance was essential, for alcohol, while supplying fuel value, could not supply the essential protein-building stores and vitamines. Monkeys fed on bananas and rice and given plenty of water could be trained to withstand exposure to the tropical sun. The sweating mechanism became developed with training.

Effect of enclosure by clothes and walls.—This, the speaker said, was very important. Air kept in contact with the body became warmed and saturated at skin temperature and heat loss became impossible. Rise of body temperature accelerated heat production, and a vicious circle resulted. The victims of the Black Hole died of heat-stroke. The body, weighing 70 kg., took some time to heat up, hence people withstood a hot bath or overcrowding in hot rooms for a time. Overheating the body increased the pulse-rate, lowered the systolic pressure, and lessened the power to compensate for the influence of gravity on the circulation. Those with circulatory defect or instability suffered first. Wind greatly increased the convective cooling power of air when the dry bulb was less than body temperature, and the convective warming power of air when the dry bulb was above body temperature. Wind greatly increased the evaporative cooling power of air so long as the dew-point was below body temperature. The kata-thermometer illustrated these facts. It was essential that a comfortable, cooling, and evaporative power should be secured in all workshops so as to prevent both over-cooling and heat-stagnation and increase efficiency, which was particularly lowered by the latter. To cite an example, with dry bulb at 89° and wet bulb at 73° F., conditions were intolerable in still air, comfortable in air moving at 1 metre per second. Suppose the air were saturated and the wet bulb were also 89° (not uncommon in Borneo), a wind of 9 metres per second (20 miles an hour) was required to give a comfortable cooling effect. Hence the enormous importance of fans and punkahs, of houses built in the tropics so as to keep off sun-heat and allow every breeze to blow through, of clothes thin, loose, and with wide openings for ventilation. Compressed air escaped cool and dry, and might be used as a cooling douche in conditions where wind did not suffice—e.g., in mines, where the wet bulb approximated to body temperature. Freezing appliances could be of little value for tropical houses; they were costly and unhealthy. A dry, hot wind, such as the simoon, might overcome the cooling power of the sweating mechanism. The wet skin reflected and evaporated off the sun-rays. The clothes and dry skin absorbed them, and black clothes much more than white. The pigment of the coloured races, by absorbing the sun-rays, prevented sunburn and activated the sweating mechanism. It allowed the skin to be thin and the blood-vessels superficial, so that those parts in the shade cooled readily. Heat-stroke was not an infectious disease; it could be produced in normal people under the exact conditions of the experimental chamber. It could be prevented by treatment based on the physical laws of cooling. The critical temperature demanding immediate relief seemed to be 107° to 108° F.

In moist still heat the cooling mechanism of the body failed in spite of being fully at work; as treatment a cooler environment must be secured. In dry heat the sweating mechanism became exhausted; a dry skin preceded and was the signal of impending heat-stroke. G. K. Hearne at Basra found that the patients with dry skin asked for the roof fans to be turned off. They were heated up just as the dry kata-thermometer was heated up by the wind, the temperature (dry bulb) being above body temperature. The sweating patients begged for the fans to be kept on; they were cooled as the wet kata-thermometer was cooled by the warm wind. After realising the danger of the dry skin he stopped all further cases of heat-stroke by water sprays and fans. The great point was to recognise the danger of the dry skin and to get the case under treatment before the temperature rose to a critical height. No other treatment but the spray and fan was required. Infection, constipation, fatigue, and drink, by weakening the heat-regulating mechanism, contributed to heat-stroke. Cramer had pointed out that both infection and exposure to a hot atmosphere caused hyper-action, followed by exhaustion, of the adrenals. Injection of tetrahydronaphthylamin produced pyrexia, with increased action of the adrenal glands, conversion of glycogen into sugar, &c. Cramer found that narcotics such as chloral counteracted this experimental heat-stroke. It was obvious that narcotics could not control heat-stroke in a man who had ceased to sweat and was in an atmosphere warmer than his body. The kata-thermometer indicated conditions of the atmosphere which were likely to cause heat-stroke. The surface temperature of a piece of black fur indicated the radiant energy of the sun.

Experiences in Mesopotamia.

Dr. A. FEILING spoke of his own experiences in Mesopotamia. He had been struck by the comparative rarity of heat hyperpyrexia in previously healthy men. He had seen a number of cases in a hospital for paratyphoid cases, of which he was in charge, and had found it advisable, if the temperature reached 103° F. or so, to cover the patients with sheets wrung out in cold water and to place them under an electric fan. If the heat regulating mechanism were disturbed heat hyperpyrexia might result even when the protection from the sun's rays was unusually complete. He also laid stress on the protracted nature of the convalescence in heat hyperpyrexia cases. Sweating was suppressed often for from 7 to 10 days and perhaps longer, and pyrexia recurred on the slightest provocation. Among the sequelæ was headache, very intractable in nature, perhaps lasting for many months. He had used the kata-thermometer and his investigations showed that free currents of air were essential in the prophylaxis. During 1917 and 1918 he had been greatly puzzled by a group of cases in which exhaustion, vomiting, and sometimes diarrhœa, were met with and in which the clinical picture was one of exhaustion and neurasthenia; possibly these were examples of adrenal exhaustion. He had obtained no success from venesection as a means of controlling the convulsions, and chloroform had sometimes been necessary. He had found it very difficult to produce sweating, though he regarded the suppression of sweat as a result and not the cause of heat hyperpyrexia.

Mr. CAMPBELL WILLIAMS asked concerning the after-results, and mentioned two patients who had become insane.

Blood Pressure a Factor in the Disease.

Mr. V. Z. COPE suggested that the greater prevalence among Europeans might be explained by the fact that they ate more meat. He regarded absence of sweating as a cause and not an effect. He had noticed that heat hyperpyrexia exaggerated the action of a small dose of anæsthetic and prolonged the anæsthesia in a case. In another case in which there were jactitations the movements ceased when a pint of blood had been removed by venesection, but began again when a pint of saline had been injected. This suggested that blood pressure was a factor to be considered. Pointing in the same direction was another clinical experience. Two pints of saline were injected into a patient with subnormal temperature and prostration: this led to improvement, but hyperpyrexia then ensued.

Sir **WILLIAM HALE WHITE** regarded heat hyperpyrexia as due to a breaking down of the heat-regulating mechanism. The symptoms produced by tetra-hydronaphthylamin were distinct from those of heat-stroke. The greatest number of cases met with under peace conditions occurred in people with some affection of the nervous system.

Difficulties in Diagnosis.

Dr. P. **MANSON-BAHR** said that in Egypt he had met with only a few cases: they coincided with the prevalence of a hot wind. He laid stress on the importance and difficulty of the diagnosis from malignant malaria, with which heat hyperpyrexia had been often confused in West Africa. This was added to by the paucity of organisms in the peripheral blood in the first 36 hours of an attack of malignant malaria. Many patients harboured the parasites, but were without symptoms until the incidence of a heat wave, when cerebral malaria occurred. The microscopic evidence was, therefore, often deceptive in the early stages, nor was splenic enlargement very helpful. The distinction was important, for if cases of malignant malaria were treated as heat hyperpyrexia fatal collapse was prone to occur.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

CHRONIC HALLUCINATORY PSYCHOSIS.

THE ordinary quarterly meeting of this association was held at 11, Chandos-street, London, W., on Feb. 24th, under the presidency of Dr. **BEDFORD PIERCE**.

Dr. R. **HUNTER STEEN**, medical superintendent, City of London Mental Hospital, read a paper on Chronic Hallucinatory Psychosis. The contribution was founded upon a series of cases in which the principal symptom was the presence of hallucinations. As the hallucinations cause slight depression, some of the cases might be included under melancholia, while the development of delusions of persecution might lead to a provisional diagnosis of paranoia being made. Others, again, might be swept into the wide net of dementia præcox—an unsatisfactory state of affairs. He set out to show that there are hallucinatory cases which can be grouped together into a well-defined clinical entity, for which he proposed the term chronic hallucinatory psychosis. The most prominent of the hallucinations are the auditory. The patient may, for years, recognise that his hallucinations are morbid and unaccountable. These patients cannot at first be termed insane, hence Dr. Steen preferred the word "psychosis" to "insanity." In the absence of an explanation the patient tries to account for their presence, and there then results a delusion, mostly one of persecution. In the early stages such a patient is quiet and orderly, and the memory is good. The speaker quoted several typical cases, some of them from French literature. In one of Dr. Steen's cases, after the revelation to him of the subject of a severe mental conflict, there was marked improvement for three years, although at the end of that time the patient returned with the symptoms more persistent than ever. One patient definitely heard various animals talking to her and had symptoms of dissociation. In most of the cases—for it could not be regarded as a rare affection—careful research into the family history would reveal a strong hereditary tendency to nervous instability.

It seemed to be an affection of adult life, beginning between 30 and 50 years of age usually. It was met with mostly in women, and not those of the lowest rank of life. Some observers suggested that an illness like pneumonia might act as a predisposing cause, but that had not been Dr. Steen's experience. A history of physical injury might be met with. There was no known special morbid anatomy of the condition. Not one of his cases had died, and he did not know of any other observers having published accounts of post-mortem examinations in such cases. The phenomena could be best understood if approached from the psychical side purely, though several theories had been advanced founded upon material conceptions. Hallucination was the result of dissociation of the mind, directly produced by a mental conflict which had been sternly repressed, perhaps for a long time, in a person congenitally unstable mentally. Sleeplessness was not a prominent symptom except in the later stages of the disorder. In a late stage the expression became anxious, a listening attitude may be noted, and the voices may be conversed with. Violence may be threatened and suicide suggested. Though there are periods of remission, on the whole the disease steadily progresses in intensity, and, having reached its zenith, remains stationary for several years.

Differential Diagnosis.

Dr. Steen discussed the differential diagnosis of the condition from general paralysis of the insane, the manic-depressive group, true melancholia, the secondary and organic dementias, and paranoia, the last-named being the most difficult in the matter of differentiation. With regard to prognosis, the earlier a case is seen the more hopeful is the outlook. When delusions have developed but little can be done to avert chronicity. The general health is not affected, and there appears to be no danger of terminal dementia. In the early stages benefit is sometimes derived from a change of environment. Rest from work, freedom from anxiety, and change of air and scene should be advised, while plenty of nourishing food should be taken and the bowels kept regular. In some cases it is well to give an occasional hypnotic to secure sleep. If, however, small doses of the bromides or hydrobromic acid do not lead to improvement, a thorough mental examination must be made; it will probably bring to light a mental conflict which has caused the dissociation. The present difficulty of getting into touch with these cases in the early stage is likely to be less in the future, with the multiplication of mental out-patient departments attached to large hospitals.

Discussion.

The **PRESIDENT** did not consider that Dr. Steen had quite established the claim to regard the malady he described as a separate disease from paranoia. Paranoia was shown by Dr. Percy Smith, in his presidential address, to be an exact clinical entity. He (the speaker) asked how it was possible for a mental conflict to produce dissociation.

Dr. W. F. **MENZIES** said that this type of case became very demented in the course of 20 or 25 years, resulting in the patients becoming chronic lunatics. Post mortem, there was always found to be more or less thickening and chronic resolution. The cases were first called paranoia, and then chronic maniacs. These matters were not, he thought, to be regarded purely from the psychical standpoint; he believed that unless the anatomical, and especially the chemical aspects were also considered, there would not be much advance.

Dr. **PERCY SMITH** said observers in various countries who described paranoia had referred to acute hallucinatory paranoia and chronic hallucinatory paranoia: and included in the writings upon paranoia were almost all kinds of acute psychosis met with—even acute delirious conditions, which was absurd. It would be too sweeping to assert that in no cases of paranoia were there hallucinations. In the address which had been referred to he had pointed out that chronic hallucinatory cases, to which the term paranoia was properly applied, often began with a serious emotional disturbance. Many cases of paranoia had hallucinations. He thought it likely that psycho-analysis would help in the early stages of the cases described by Dr. Steen.

Dr. STEEN, in reply, said he was not prepared with an explanation as to how a mental conflict produced dissociation, but he entertained no doubt as to the fact, especially when the conflict was strongly repressed. He pointed to the case in his paper in which the revelation of this source of conflict was followed by relief for three years. He agreed there were hallucinations in some cases of paranoia, but paranoia was a disease characterised by delusions, with, as a rule, absence of hallucinations: certainly the latter were not characteristic of paranoia, while they were of the cases now described. In a review of the cases, the assumption of a causal physical basis had not afforded him any help, but an approach from the psychical side gave him a better insight into the condition. Early psycho-analysis, he believed, would enable many cases to recover.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

THE DIAGNOSIS OF GONORRHŒA: A STUDY OF 500 CASES.

A MEETING of this society was held at Liverpool on Feb. 20th, with Mr. MILES H. PHILLIPS, the President, in the chair, when Dr. W. W. KING (Sheffield) read a paper on the Diagnosis of Gonorrhœa, based upon an analysis of the first 500 cases under his care at the venereal clinic of the Jessop Hospital for Women, Sheffield. He divided the cases into two groups—those in which the gonococcus had been found ("proved" gonorrhœa), and those presenting the signs and symptoms of the disease, but where the specific organism had not been isolated ("clinical" gonorrhœa). The gonococcus was found in 60 per cent. of cases presenting clinical symptoms of gonorrhœa, but in a number of these was only isolated after repeated examinations. He estimated that from 70 to 80 per cent. of patients with the physical signs mentioned later were really suffering from gonorrhœa. Of the remaining 30 per cent. the majority were venereal, but in one case the infection appeared to be due to a diphtheroid bacillus present in the cervical and urethral discharge.

The symptoms complained of were discharge (yellow or white), pain on micturition, local pain and swelling, abdominal pain, menorrhagia, and irritation. Yellow discharge was present in over 70 per cent., and pain on micturition in about 30 per cent. of both "proved" and "clinical" cases. The physical signs noted were vaginal discharge, vulvitis, papillomata, leucoplakia, lesions of Bartholin's gland, urethral discharge or thickening, urethral caruncles, vaginitis, and affections of the cervix uteri. Vaginal discharge was present in 80 to 90 per cent. of all cases. Acute gonococcal vulvitis was not often met with, most of the cases seen at the clinic being in the subacute or chronic stages. In about 80 per cent. of cases there was a purulent urethral discharge, but in a small number the discharge was white in colour and composed of epithelial cells in which the gonococcus was sometimes found. Thickening of the urethra was most valuable evidence of past gonorrhœa in the female, and was comparable in this respect to stricture in the male. Infection of Bartholin's gland was only met with in 10 per cent. of cases.

The commonest evidence of cervical infection was purulent or muco-purulent discharge usually associated with a patulous condition of the external os. The combination of purulent discharge and patulous cervix was a helpful diagnostic sign, especially if the internal os was also sufficiently patent to admit a "dressed" probe into the uterine cavity. In more chronic cases the discharge consisted of a clear mucus, and this, coming through a patulous external os, produced a bull's-eye lantern effect which he had called a "magnifying" cervix. The magnifying cervix was typically seen in nulliparæ, but occurred also, though less strikingly, in women who had borne children. This condition corresponded to the gleet stage of gonorrhœa in the male, and occurred in about 15 per cent. of cases. The inguinal glands were rarely found enlarged in uncomplicated gonorrhœa. When enlargement was present he always suspected the presence of syphilis. Salpingitis was the most frequent complication of gonorrhœa met with (18 per cent. "proved" cases, 12 per cent. "clinical" cases). No case of gonococcal cystitis was noted in the series, although generally stated to be of fairly frequent occurrence.

Detection of the gonococcus in film preparation was at present the only certain method of diagnosis. The method of preparation of these films was important. "Dressed" wires were used for collecting the material which was dabbed—not rubbed—on to the slides. In this way, the leucocytes were preserved intact and the intracellular features of the gonococcus more easily observed. The importance of the urethra in the bacteriological diagnosis was shown by the fact that the organism, when found, was present in the urethral discharge in over 70 per cent. of cases. If found at all, the gonococcus was generally detected in the first five examinations, but in some cases not until the eleventh or twelfth. Cultural methods were extremely difficult to carry out with the highly contaminated pus present in the female. We must look, therefore, to some serum reaction which will put the diagnosis of the disease on a surer footing than at present. The technique of the complement-fixation test for gonorrhœa is at present imperfect.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society, held on March 4th, Professor J. B. Leathes read a paper on the Function of the Kidney in Nephritis. He began by referring to results described to the Association of Physicians in July last,[1] showing that two common failures in the cases of war nephritis examined were loss of diuretic response to the intake of water and absence of the matutinal alkaline tide, two independent phenomena, either of which occurred without the other. The persistence of the nocturnal urinary acidity throughout the first hours after waking showed that it was not to inability of the kidney to remove acid that a tendency to dyspnœa in such cases should be traced. The normal acidity of the urine in the evening and at night is normally accompanied by a considerable increase in the output of phosphate, and the fact that a diuresis induced by phosphate, unlike that produced by other agents, is an acid diuresis, suggested that the amount of phosphate excreted by subjects who exhibited no alkaline tide might be found to be high. But this was not the case; nor was the phosphate increased, as chloride and nitrogen output are, by the diuretic flood. Taking average figures from more than 100 tests, with the hourly output of water increased to four times as much as it was during the night, the hourly output of phosphate fell at the same time to two-thirds of what it had been before the diuresis, a proportion observed equally when there was and when there was no alkaline tide. Cushny has shown that a partial obstruction to one ureter, hindering the escape of urine, tends to diminish the volume and increase the acidity of the urine from that kidney [illegible] compared with the other. Obstruction in the tubules, due to the presence of red blood corpuscles or blood clots, conceivably might account for diminished volume with increased acidity in some of these cases; and it was observed that it was particularly in cases that persistently passed granular casts (which can be shown to contain altered blood pigment and from which hæmatin can be prepared) that this combination of small volume and high acidity was common. Another peculiarity found in cases of nephritis, the tendency for the retention of chlorides rather than of urea, might also be accounted for by films of blood clot on filtering surfaces, if it were shown that clotted blood exhibited the properties in regard to permeability which characterise red blood corpuscles—namely, permeability to urea but not to sodium chloride. Experiments with blood clotted in thin layers on dialyser membranes have been begun, and so far have shown a remarkable impermeability of the clot to sodium chloride. Whether this may account for the phenomenon common in these cases of nephritis the experiments are not yet sufficient to decide. The very great majority were clearly cases of acute glomerulitis in which hæmorrhage from glomerular tufts [illegible] probably one of the earliest disturbances, and in some degree is probably constant.—Professor A. J. Hall, Dr. A. E. Barnes, Dr. A. E. Naish, Dr. R. G. Abercrombie, among others, took part in the further discussion.

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[1] Brit. Med. Jour., August, 1919, p. 165.

Reviews and Notices of Books.

PRACTICAL PHARMACOLOGY.

For the Use of Students of Medicine. By W. E. DIXON, M.D., F.R.S. London: Cambridge University Press. 1920. Pp. 90. 7*s.* 6*d.*

THE old materia medica is passing away, with its study of barks and roots and seeds and the preparation of mysterious compounds by bored and unwilling students. In its place has arisen the newer study of the action of the drugs in man and animals with more or less successful attempts to explain the way in which they affect disease. In most schools this discipline precedes attendance in the wards or, at the latest, is taken in the beginning of the clinical work, when the student is still unfamiliar with the aspect of disease and can hardly be expected to follow very closely the changes wrought by treatment. This position in the curriculum, necessitated by the close dependence of pharmacology on physiology, results in a certain want of reality in the treatment of the subject, and in order to remove this a number of books on practical pharmacology have been issued of late years, chiefly in the United States. In some of these the student seems to be expected to spend his time, which must apparently extend over months, in performing experiments on animals, which would be formidable operations for a trained physiologist, and in which one would suppose that the chief interest must lie in the preparatory operation rather than in the drug action which it is expected to illustrate.

Professor Dixon's little book avoids this spectacular method and deals largely with such facts as can be demonstrated in simpler ways, with test-tubes and frog muscles and hearts, and in that way seems admirably adapted to give the student some insight into the way in which drugs affect living tissues. It begins with the action of drugs on proteins, ferments, and protozoa, and proceeds in succeeding chapters through experiments on striped and plain muscle and blood to those on the heart and blood-vessels, glands, and central nervous system. The excretion of drugs is treated of, and some experiments to be done on the students themselves are suggested. We hope that this chapter may be expanded in future issues. Nothing interests the student more, and nothing can be more useful than the examination of his fellows for symptoms, especially if he is not informed beforehand what drug has been given. The final chapter on the physical (it used to be the "sensible") properties of drugs would shock the old teachers of materia medica by its brevity, but is on the right lines.

While we are not prepared to endorse all the statements made by Professor Dixon, we can cordially commend this book to the attention of teachers. Even if they differ from the author in many points, they will find—what many are seeking—a type of practical work to give their students as a substitute for the old practical materia medica, of which they have begun to doubt the utility.

GUNSHOT WOUNDS.

Contribution à l'Étude du Traitement de Plaies de Guerre par la Méthode Mencière. By Dr. FRANCIS BRABANDER, Médecin Aide-Major de 2^{e} classe. Paris: Ollier-Henry. 1920. Pp. 142.

THIS is a monograph describing Dr. Louis Mencière's method of treating gunshot wounds. The method consists of introducing into the wound a mixture of iodoform, guaiacol, eucalyptol, balsam of Peru, alcohol, and ether. It is claimed that with its use excellent results were obtained—and no doubt they were an accompaniment. It is noted, though, that before using the mixture the wound should be excised and all foreign bodies removed. Most surgeons agree now that the ideal treatment of war wounds is early excision and early suture, and that the additional employment of any of the innumerable antiseptics which have been vaunted is of the minimal importance.

THE HEALTH OFFICER.

By F. OVERTON and W. J. DENNO. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 512. 20*s.*

THE Ministry of Health has many problems before it and among them not least in importance is the position of the medical officer of health. Is he to remain a servant of the local authority, or is he to become a State official? Is he to devote his time entirely to hygiene, sanitation, and the preventive side of medicine, or is he to be brought into closer touch with the general practitioner and the curative side? Questions such as these cannot be determined without careful thought, and advantage is gained by learning what is the position of health officers in other countries than our own. Already we have learnt much from America—as, for instance, from Alex. Flexner in relation to medical education—and we can obtain further valuable light upon the possibilities which lie within the duties of a health officer by considering how this office is worked in the States.

A useful book for this purpose has just been published, and we gather therefrom that in the States the health officer steers a middle course between local and State supervision. "A health officer derives part of his authority from the State laws and part from local ordinances. When he acts under a State law he has the prestige and power of the State to support him. But when he acts under a local ordinance he is not always sure of the support of the local board of health. If he has the active coöperation of his board of health he may be reasonably sure that he has sufficient power to carry out his work. If the board is lukewarm or hostile, he can do little under the local ordinances." Legislation in the States would appear to be on somewhat different lines from those followed here. First, there are certain statute laws which lay down the broad principles of hygiene. Each State, however, has its own laws. Then come sanitary codes, which lay down in detail the way in which these principles shall be administered. These codes only apply to definite districts and areas which adopt them, but once adopted they have full legal power. "The universal intent is that the State Department of Health shall assume command when actual danger is at hand, and at other times shall act as a kindly teacher and counsellor to the local health authorities. For example, a state department of health will examine a public water-supply, and if the water is not pure, it will point out the sources of pollution and will advise the local authorities regarding remedial measures; but if the pollution produces sickness, the State Department of Health may take charge of the situation and compel the local authorities to remedy the conditions."

Beyond these ordinances the health officer seems to have a wide discretion, thus, "public sentiment and the courts grant almost dictatorial powers of the health officer in the presence of an epidemic," and as long as his actions can be held to follow within the broad principles of the statute law, he would appear to be able to act on wider lines than those to which the sanitary codes of his district might be held to restrict him. In the States as well as here development in the outlook on medicine appears to be progressive, and "the health officer is expected to improve social conditions which foster physical defects and sickness. He is also a physician to the strong and the well, and seeks to maintain a high standard of health and efficiency in a community. The next great development in medical practice will be the treatment of the well, and in this movement the leaders will be the health officers." More often than in this country the health officer appears to be a general practitioner practising in the area for the general health of which he is responsible; and the possibility of drawing closer the preventive and curative side of practice seems to be easier.

The authors of this book hold that even to-day a practitioner has double duties. "Those who employ a physician have a right to expect that he will advise them not only how they may recover from sickness, but also how they may prevent the sickness from developing again in the future, and from spreading the disease to other persons. The laws and sanitary code of New York State recognise these obligations, and require physicians to perform specific duties which make them an official part of the public health organisation of the State."

They also point out how, as in this country, public health is developing steadily on individualistic lines as distinct from communistic. A claim is made that from a widespread campaign of personal education great results can be obtained, in support of which the health record of New York city is quoted. Whether this is a case of *post hoc ergo propter hoc* or not, the record is certainly astonishing, for we learn that the death-rate in the city became in 1910 as low as that of the surrounding rural districts, and has been below that in rural districts ever since, so that "the country no longer needs health protection against the city, but the city must be protected against the unhealthful influences of the rural districts. The public health problem of the future is to bring the work of the country up to the standard of that in the city."

Apart, however, from its wider interest to us at the present time, this book is an exceedingly useful volume. The authors seem to have adopted the sound principle of taking for granted that their readers know nothing. They therefore start from the beginning and in simple words tell their story. Nevertheless, they carry the story forward to include the most recent knowledge on each of the subjects treated. We strongly recommend those who are making the acquaintance of preventive medicine to obtain this book. It is as useful here as in the States, and the American way of emphasising and drawing attention to detail and fact cannot fail to be of use and to interest medical officers of health and sanitarians of all kinds.

ATLAS OF PLASTIC SURGERY.

A Stereoscopic Atlas of Plastic Surgery of the Face, Head, and Neck, by JOSEPH C. BECK and IZA FRANK, Chicago. London: Henry Kimpton. 1920. 35*s.* net (with stereoscope).

THIS Atlas includes a series of stereoscopic plates, designed to summarise the more common operations met with in plastic head surgery. In addition to the pictures, there are added brief case-reports.

JOURNALS.

Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIII., No. 5. 1920. Cambridge University Press. Pp. 273–366. 7*s.* 6*d.*—On Physiological Radio-Activity, by H. Zwaardemaker. No representative of the heavy radio-active elements belonging to the three groups—radium, thorium, and actinium—is found in the animal organism, except, perhaps, a trace of emanation, but potassium to the amount of 40 gr.—one of the light radio-active elements —occurs as a permanent constituent of the body. It is stored for a great part in the muscle cells and red blood corpuscles, and rather more than 1 gr. in the blood as a free diffusible ion. The potassium ion is known to be indispensable to cardiac action, and it appears to be its radio-activity which is answerable for this action. Perfusing a frog's heart through a Kronecker cannula it was found that a radio-active element, whatsoever it may be, added, in a dosage of equivalent radio-activity, to a potassium-free Ringer's mixture, renders such a solution as effectual a circulatory fluid for the heart of a cold-blooded animal as the original fluid; strong hearts may continue beating for hours. No inactive radio element was found that could replace potassium in Ringer's mixture; α-emitting bodies taken up in potassium-free Ringer's solution proved excellent potassium substitutes. There is also an antagonism between light and heavy radio-active atoms not only for the frog's heart, but also for other systems—e.g., vascular endothelium. Perfusion of oxygenated Ringer's fluid through a newly killed water frog even for 24 hours is not followed by œdema, but if potassium is omitted from the perfused fluid a violent œdema is developed. This œdema can be prevented by replacing potassium by its substitutes (Rb, U, Th). It is known that the glomerulus-epithelium of the frog's kidney completely checks glucose in Ringer's fluid from appearing in the urine, and that glucose appears in the urine directly the potassium is left out. Instead of potassium uranium or radium may be taken in such dosage as is required to prevent œdema. Emanation—a chemically indifferent gas, Ramsay's niton—emits α-rays. This emanation, added to a potassium-free Ringer's solution, will restore the beat of a heart brought to a standstill through removal of the potassium. "It is certain that radio-activity is a mighty biological factor, capable of restoring a lost function. Such a factor may act either as a cause or as a condition." It is concluded that in a large number of systems—heart muscle, vascular and glomerular epithelium—the potassium atom may be replaced by other radio-active elements, the heavy ones as well as the light ones, provided the dosages are of equal radio-activity. When applied simultaneously the substances emitting α-rays and those emitting β-rays are reciprocally antagonistic. Potassium is (as bearer of the physiological radio-activity) for many cells a stimulus, which can restore and sustain function when it is brought in contact with the surface of cells, as a free, diffusible ion in the circulating fluid. A free radio-active substance can take the place of potassium when previously the potassium is omitted from the circulation.—Studies in the Regeneration of Denervated Mammalian Muscle: III. Effects of Massage and Electrical Treatment. By F. A. Hartman and S.-Sgt. W. E. Blatz. Neither massage nor galvanic stimulation appeared to benefit denervated muscle.—The Relation of the Animal Cell to Electrolytes. I. A Physiological Study of the Egg of the Trout, by J. Gray, M.A. The author describes the normal fertilisation of the egg of the trout—laid during the winter months from November until March—as well as the artificial "dry" method of fertilisation. The latter method yields 90 per cent. of fertilised eggs, the former perhaps only 8–10 per cent. In the "dry" method the sperm and eggs are mixed together and water is then added, so that each egg is surrounded by highly motile spermatozoa and fertilisation is assured, and it would appear that the actual entrance of the sperm nucleus into the egg takes place within half a minute after mixing the egg with sperm. The spermatozoa in the spermatic fluid are quite motionless, but if a very small drop of sperm is placed in the centre of a drop of water and examined under the microscope the spermatozoa near the junction of the two drops are seen to be intensely active. The spermatozoa are only motile when they come in contact with water, and the period of motility is extremely short—1½–2½ minutes. Hence the reason why the "dry" method is so much more effective than the "wet" or normal method, where the male sheds its sperm directly into the water over the position of the eggs, and few spermatozoa remain long enough motile to reach the eggs. Both fertilised and non-fertilised eggs contain a considerable amount of electrolytes. When an egg is injured or dies rapid exosmosis of electrolytes takes place. The egg never becomes permeable to intracellular colloids. After fertilisation electrolytes do not appear to diffuse out of normal eggs. The freezing point of the egg-contents is approximately that of the blood of fresh-water teleosts. The whole of the intracellular electrolytes can be removed by a dialysis of the cell contents, while the proteins within the cell—largely consisting of globulins, held in solution during life by neutral salts—are precipitated. This also occurs when the egg dies. The whole of the obvious changes produced in the dead egg are explicable by a study of the properties of the intracellular globulins—e.g., the change in size produced by acids and alkalies. The controlling factor of the high electrolytic content of the living cell appears to be located in the thin protoplasmic membrane lining the egg shell.—Other papers in this number are: The Time Relations of the Blood-Pressure Changes after Excision of the Adrenal Glands, with some Observations on Blood Volume Changes, by H. C. Bazett.—The Reaction and Carbon-Dioxide Carrying Power of the Blood: A Mathematical

Treatment, Part II., by T. R. Parsons.—The Influence of the State of the Blood on the Interworking of the Eyes, by Walter M. Coleman.

Veterinary Review. Edited by O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S. Vol. IV., No. 1. February, 1920. Issued quarterly. Price 6*s.*; annual subscription, 16*s.* 6*d.* Edinburgh: W. Green and Son, Ltd.—This number contains an opening article on the importance and value of an accurate veterinary bibliography. The writer, Mr. F. Bullock, secretary of the R.C.V.S., criticises bibliographies as frequently given by authors of literary and scientific articles and books. He points out many of the errors and omissions made in numerous examples taken from recent literature, and gives instructions as to how correct bibliographies should be compiled. Latitude should be given to the inspiration aroused by the perusal of other men's works, and personal attributes and phases of thought cannot be docketed as strict bibliographical references. The contents of the *Review* are divided into five main sections, comprising abstracts, reports, reviews, notes on books, and bibliography. All the section are carefully written and compiled, and although only a young periodical, the *Review* is quite justifying its existence as a big mine of useful information. The divisions on reviews and notes on books are very valuable, as they keep readers abreast of current literature, and indicate that veterinary thought and research, taken as a whole, is alive and alert.

Le Scalpel. Bulletin de la Fédération Médicale Belge, 47, rue Dautzenberg, Brussels. 20 francs per annum. Vol. LXXIII. Nos. 3-6.—The problems of venereal disease are as much in the minds of our continental colleagues as in our own. In Belgium an article on the "péril vénérien," which appeared in *Le Scalpel* for Nov. 16th last has served as a touchstone to light the fires of controversy, and three out of the four numbers under review devote space to the subject.

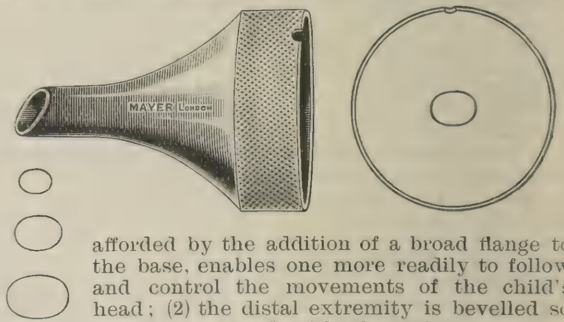
Dr. Bayet, of Brussels, contributes a paper, read in the first place before the Belgian Academy of Medicine, which deals critically and forcibly with the whole problem of venereal prophylaxis. After reviewing the various causes which have contributed to the great increase of venereal disease in Belgium—the German occupation, the laxity of morals associated with war, the demobilisation of their own army—Dr. Bayet turns in castigation upon the measures adopted to combat this plague. For "regulated prostitution" he has no good word to say. After 130 years this method is proved useless by the fact that the evil against which it was invoked was almost as rampant even before the war as on the day when State control was first enforced. The causes of immorality are deeply rooted in social conditions, and only the abolition of poverty which makes early marriage impossible will do away with illicit intercourse. But to-day the disease exists, and to fight it we must attack the germs in the bodies of those who convey it. This is the true basis of prophylaxis. All infected persons must be treated, and whether or not they are cured of the disease, at least we must be sure that they are rendered incapable of infecting others. To this end every encouragement to seek aid must be given to those who have taken the disease. Centres must be constituted where gratuitous treatment is afforded with due discretion. The State control of prostitutes makes this impossible, for so long as the policeman stands behind the doctor no woman will dare to apply at the clinics. Administrative prophylaxis has failed, and medical prophylaxis will only succeed if the whole profession unite in a broad-minded campaign to make it successful. The Ministry of the Interior (Department of Health and Hygiene) make the official position clear in *Le Scalpel* for Jan. 31st and Feb. 7th. They do not consider police supervision of prostitutes incompatible with medical treatment of the syphilitic population, since both are included in their plan of campaign. Apart from the first item, this resembles very closely the policy of our own Ministry of Health. Considerable stress is laid upon the value of education.

Other interesting articles include a research by Professor Laguesse (Lille) into the variability of the endocrine function of the pancreas, and a description by Dr. L. Ledoux (Brussels) of eight cases of severe stricture of the œsophagus resulting from burns. —Dr. Paul Denis claims to have succeeded in producing immunity as tested by the Widal reaction through the administration of a mixed vaccine (*B. typhosus*, *B. paratyphosus*, and *B. coli*) by the gastric route.—The abstracts appear to be selected from the French and Belgian medical press only, and book reviews are not numerous. Also, we must confess that the system of numbering the folios is a little bewildering.

New Inventions.

AN IMPROVED EAR SPECULUM.

THE difficulty of otoscopic examination in children has led me to devise an instrument (see figure) which, I believe, possesses some advantages over specula of the ordinary pattern. These are: (1) the good grip, afforded by the addition of a broad flange to the base, enables one more readily to follow and control the movements of the child's head; (2) the distal extremity is bevelled so as to correspond with the obliquity of the tympanic membrane when in position—the notch in the margin of the speculum should point upwards and backwards; (3) the instrument does not taper to a point, the terminal 10 mm. forming a tube of uniform calibre; (4) this tube is oval on cross section, but, owing to the bevelling, the distal opening is circular; (5) the plating is polished outside but dull within, and the speculum is made in three sizes, having terminal apertures of 3 mm., 4½ mm., and 6 mm., the larger sizes being suitable for adult use.

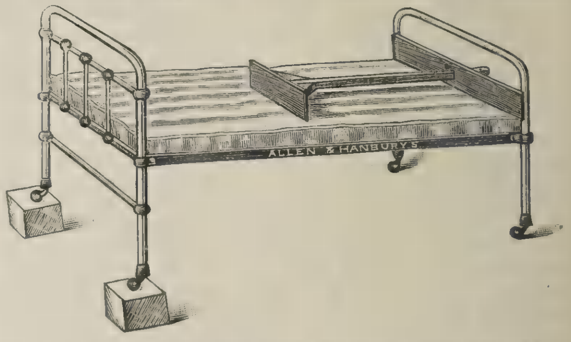


The makers are Messrs. Mayer and Phelps.

Edinburgh. DOUGLAS GUTHRIE, M.D., F.R.C.S.

A PROP FOR RETAINING PATIENTS IN THE FOWLER POSITION.

THE prop shown in the illustration has been devised for retaining patients in the Fowler position, and is easily adjusted and slipped down so that attention may be given to the pelvis when necessary. It is simple to clean and inexpensive. The head and shoulders well raised, the patient rests with the buttocks on a narrow shelf, on which is placed a small pillow, and a pillow is placed on each side of the vertical bar so that each leg may be supported. The peg is placed in a hole in the vertical bar at the foot of the bed, according to the length of the patient.



Messrs. Allen and Hanburys are the manufacturers.

Gloucester. C. FIRMIN CUTHBERT, F.R.C.S.

THE LANCET.

LONDON: SATURDAY, MARCH 20, 1920.

Robert Morant, Public Servant.

Robert Morant, First Secretary of the Ministry of Health, servant of the public in many great capacities, was at the centre of some of the most important developments of our society, and by his death the nation, and not only the medical profession, has lost an incomparable adviser. The widespread sorrow which has been caused by his sudden end last week has received a large measure of acknowledgment in the detailed records of his life which have appeared on all sides, so that we need not recapitulate in this place how the Wykehamist and Oxonian went rapidly from theology to schoolmastering, and then by dramatic transition to a confidential post at Siam, to welfare work in the East of London, and so to the Board of Education. Intensive study in the slums made him familiar with the social and educational defaults under which a large majority of the population of the country were dwelling, and his splendid work at the Education Office, culminating in his appointment as Permanent Secretary of the Board of Education, was made possible by his ripe experience, his sympathy with the unmerited drawbacks of those who get no chance, and above all by his large views of justice.

All this is interesting, because it is explanatory of the position and actions of the man who bore the brunt of many controversies over the National Insurance Act, and, it may be added, who never concealed his dislike of much that became the necessary procedure of that measure, even while the objectives of the vast piece of legislation were the expression of his own ideals. It was characteristic of Morant that, when he realised that the National Insurance Act was going to take the shape that it did, he suppressed all spirit of criticism in himself in order to extract from the new legislation the greatest good for the people. The working of the National Insurance Act, so far as its principal intention was the provision of medical assistance upon the insurance plan for a large section of the population, was hampered from the start by the want of preliminary preparation. The ground had never been properly surveyed before occupation, and muddles and altercations that might have been avoided marred the start of a measure which, upon its introduction, had received a unanimous ovation. To Morant there fell a large share of the constructive work which had to be undertaken in these unpromising circumstances, and his efforts were soon realised by the medical profession as being in accordance with a courageous desire to do right. But the working of the Act had hardly got into swing before the war broke out, with the result that a large proportion of the insured, and, relatively speaking, an even larger proportion of the medical men in charge of the health of the insured, were removed to new spheres of activity; of the doctors many of those in panel practice joined the colours, and those who remained behind had to discharge their duties in circumstances not comparable with any that were contemplated by the Act. Morant helped to enable the medical profession to meet the extreme claim upon them, and those who attended the sessions of the Central Medical War Committee will remember how hard he fought for the interests of medical men of all classes, as he regarded those interests, and how resolute he was that the maintenance of the health of the country and of the workers at home should count as second only in importance to the necessity of supplying the fighting men with adequate medical assistance.

During all the time between the passage of the National Insurance Act and the cessation of hostilities in the war Morant steadily grew in the esteem of the medical profession, who realised that in him they had a genuine friend, candid in respect of their weaknesses, but more clear-eyed than many of their own leaders in respect of their great qualities and potentialities; and when the Ministry of Health arrived he was unanimously marked out for his post. This was, moreover, as it should have been, for while the idea of such a Ministry had been present to the minds of medical reformers for at least three generations, it was Morant's idealism, broad range of experience, and powers of intimate concentration which counted incalculably in the transformation of the idea into a working organisation. He has died on a winning field, with the pathos that surrounds such a tragedy.

The Lessons of Statistical Methods.

A letter from Dr. H. E. Littledale appealed in The Lancet of Feb. 28th for the more extended use of statistics in their application to medical treatment; and in the same issue, dealing with the petition of the Royal Statistical Society for a State committee of inquiry into the collection and presentation of public statistics, we commented upon the use of figures in medicine. It is enticing to think that by an appeal to statistics we can settle once and for ever the best, the most successful, process of dealing with a pathological condition, but the dangers of accepting figures in their wrong significance are greater than neglecting their lessons entirely. In political matters it was long ago recognised that statistics could be made to support the most diverse ideas, and those who are watching the alcohol controversy will see that figures can be advanced purporting to prove on the one hand that alcohol is the main cause of poverty, and on the other that in countries where alcohol is used there is less poverty than in those which, in the picturesque language of America, are "dry." Statistics may be of immense value, but they must be used with the greatest caution, for their fallacies are apt to be concealed even from experts. Sound statistics, sifted and garnered in a right way, will form a firm foundation for trustworthy conclusions, and by statistics alone can a true idea of the value of some forms of treatment be based. But recognition of the limitations is necessary. An instance may be found in the serum treatment of tetanus. The prognosis of a case of tetanus is always doubtful; sometimes the most severe cases seem to recover when it is impossible to say that the treatment has saved them. Still more difficult is it to say, by the observation of isolated cases, whether the serum can prevent tetanus for many wounds that might be expected to be followed by tetanus never give rise to it, and even very slight wounds may end in an attack. It was only by the consideration of a long series of cases, in which every case of wound was treated with doses of the serum, that we could be certain that the serum had a definite and a very great power to prevent the development of the disease. Apart from the individualities of the patient and the uncertainties of diagnosis, we have to consider, when estimating the comparative value of any therapeutical procedure, all the environmental conditions, the stage of the disease, and perhaps the strain of a particular germ. These difficulties can only be met by observations so vast in number as to indicate the magnitude of the ideal.

Dr. LITTLEDALE'S suggestive letter may be referred to as showing alike how the need for statistical methods is felt, and how the scope of such methods is not fully recognised. By statistical methods we mean methods specially adapted to the elucidation of quantitative (numerical) data affected by a multiplicity of causes. Dr. LITTLEDALE asks for the results of 5000 operations of breast cancer as to duration of life, freedom from pain, and so forth; he also asks for the results in 5000 cases of breast cancer treated by any one or other method. It is not feasible to obtain the required data in any shape that can be called statistical. Pain, for instance, cannot be subjected to quantitative measurement, and it is extraordinarily difficult to determine its real seat of origin. If we consider the question of duration of life—a more obvious one for the application of statistical methods—we still find that we have no really simple task before us. It is said that the expectation of life in those on whom no operation has been performed is about 22 months, while in those who undergo a radical removal of the breast the expectation of life is 38 months. But this is not an answer to Dr. LITTLEDALE'S question. Suppose that careful notes have been taken of 5000 operation cases by two or three good surgeons whose percentage of so-called successes in early breast cases is approximately the same; and that 4000 sets of notes can be obtained of cases which have been only subjected to one special non-operative treatment by a few practitioners whose results are approximately equal—we depart purposely from Dr. LITTLEDALE'S figure to show that there is no point in identical numbers—it might be thought that the two sets of notes would give the requisite data. Far from it. It is known that the prognosis of duct cancer after operation is good, and that of encephaloid is extremely bad, while cases of very chronic scirrhus may live for perhaps 20 years or so. It will be necessary, then, to compare only cases of carcinoma of the same type. Further, it is absolutely necessary that every case should be submitted to a pathologist for histological examination, in order to be certain that the case was really one of the type under consideration. Otherwise what possible evidence can we obtain, in a case that has not been operated upon and which has been reported as cured by some non-operative measure, that it was a case of carcinoma at all? Again, the stage of the disease in the two classes when they come under treatment must be comparable. More or less sound conclusions could be drawn from data that dealt with cases that came under treatment within the first five months, say, after the onset of the disease, in every one of which a small portion of the growth had been removed and certified by an adequate pathologist to belong to the type under consideration; and, further, the number of cases in either class that were alive at the end of five years would be good material for conclusions. It is true that some deaths might have occurred from accidents or intercurrent disorders, but we may assume that the proportional frequency of such deaths would probably be about equal in each class, those that have undergone operation and those that have not. Even with the most careful precautions against error we must always remember that we are dealing with different patients whose vital resistance is different. But if the data we have indicated could be obtained the method of dealing with them would be as follows. Say that in Class A, those which have undergone operation, there are 5000 cases, which we may denote by (A), and that 500 of these are alive at the end of five years, we can represent this 500 by (AL). Then $\frac{(AL)}{(A)} = \frac{500}{5000} = 10$ per cent. And say that in Class B, those which have undergone no operation, there were 4000 cases, denoted by (B), of which (BL), say 80, cases were alive at the end of five years. Then $\frac{(BL)}{(B)} = \frac{80}{4000} = 2$ per cent. Such a result would be strong evidence in favour of the treatment to which Class A was subjected. But conclusions can only be drawn by comparing the ratio $\frac{(AL)}{(A)} : \frac{(BL)}{(B)}$, and even then the conclusions will be misleading if there has been any selection of cases; if, for instance, the less threatening cases are submitted to non-operative treatment.

Enough has been said to show how difficult it is to obtain the requisite data to which to apply statistical methods in this particular instance selected for consideration. It is not the fault of the methods, but of the observations, which can be so seldom made in the necessary form. Dissimilar cases are put into the same class (for instance, duct cancer with encephaloid) or dissimilar classes of cases are compared with each other rendering the deduction valueless. The general lesson to be enforced is this. Statistical research, like any other branch of scientific investigation, involves difficulties of two orders—the material and the methodological. Most of us appreciate the latter, and feel that experience in the use of mathematical notation is required. But it is equally necessary that mathematical analysis should be informed with exact familiarity with the material peculiarities of the data. Both kinds of knowledge are necessary to reach truth by the statistical path, and even to avoid error. For these reasons the presence of eminent statisticians is welcome upon the Interdepartmental Committee appointed to settle the forms which the records of medical practitioners under the Insurance Act shall take.

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Adequate Isolation Hospital Accommodation.

SOME little time ago we were asked by a correspondent to state briefly the factors which should be considered in arriving at a conclusion as to whether or not the isolation hospital accommodation of a district is adequate for the needs of the population it is intended to serve. The answer to this question depends upon various considerations, among the most important of which are: the character of the district, whether urban or rural; the rate of increase of population; the housing and habits of the people; and the amount of intercourse with other places from which infectious disease may be introduced. In most districts hospital accommodation is provided for cases of scarlet fever, diphtheria, enteric fever, and cerebro-spinal fever. For these four diseases, 1 bed for every 1000 inhabitants may be accepted as a rough estimate, though it cannot be regarded as a definite standard. Such a provision is not likely to be found excessive, and will not suffice for the accommodation of all cases during epidemic periods. The adequacy of hospital accommodation will, of course, depend not merely upon the aggregate number of beds, but also upon the manner in which they are arranged in wards. As a general rule it is necessary to have separate pavilions or ward-blocks for each disease admitted to hospital, but an isolation block containing a number of small wards separately entered from the open air is very useful. Accommodation of this nature can be employed for the simultaneous isolation of cases of different diseases; for keeping doubtful cases under observation; for the segregation of complicated or delirious cases; or as private wards for paying patients.

If it is intended to isolate cases of measles and whooping-cough many more beds than 1 per 1000 of the population will be required, but these diseases are seldom removed to hospital on a large scale as the utility of such a measure is still doubtful. Pulmonary tuberculosis is now generally treated in sanatoriums or hospitals belonging to sanitary authorities. The schemes in force for the prevention of the disease are not uniform in character. In some districts only early cases are admitted to the sanatorium, sometimes for short periods as an educational measure or for more prolonged open-air treatment. In other districts late as well as early cases are taken into hospital or sanatorium. No general standard as to the number of beds required is therefore of much value; the needs of each district can only be estimated by consideration of all the various factors concerned.

Every sanitary authority should make provision for the isolation of small-pox. They may do this by themselves erecting a small-pox hospital or by arranging with some other sanitary authority for the use of a certain number of beds when required. The cost incurred may be regarded as the price which the public have to pay for what is known as conscientious objection to vaccination. The modern possibilities of communication by means of motor ambulances render it practicable for a single small-pox hospital to serve the needs of a large area. It is important that the following conditions, which were laid down by the Local Government Board in connexion with small-pox hospitals, should be complied with. The site must not have within a quarter of a mile of it either a hospital, whether for infectious diseases or not, or a workhouse, asylum, or any similar establishment, or a population of as many as 200 persons. It must not have within half a mile of it a population of as many as 600 persons, whether in one or more institutions, or in dwelling-houses. Even where these conditions are fulfilled, a hospital must not be used at one and the same time for the reception of cases of small-pox and of any other class of disease. It is impossible to estimate the number of beds that may be required for the isolation of small-pox during epidemic periods. The site should in all cases be sufficiently large to admit of rapid extension of the hospital by the erection of temporary buildings, and the administrative portion should be upon such a scale as to suffice in the event of such extension of the ward accommodation becoming necessary.

SCOTTISH BOARD OF HEALTH: CONSULTATIVE COUNCILS.—The consultative councils set up under the Scottish Board of Health Act have appointed the following Chairmen and Vice-Chairmen:—Medical and Allied Services—Chairman: Sir Donald MacAlister, K.C.B., M.D.; Vice-Chairman: Norman Walker, M.D. National Health Insurance—Chairman: W. Thomson; Vice-Chairman: Thomas J. Addly. Local Health Administration and General Health Questions—Chairman: Sir Thomas Munro, K.B.E. Highlands and Islands—Chairman: Her Grace the Duchess of Atholl, D.B.E.

Annotations.

"Ne quid nimis."

NEW STAFF OF OUTDOOR MEDICAL OFFICERS OF THE MINISTRY OF HEALTH.

IN connexion with the appointments for medical officers which the Ministry of Health announce in our advertising columns this week the Ministry supply the following particulars which may be of interest. The new staff will include both whole-time and part-time medical officers. Each whole-time officer will be stationed in the area in which he works. Particulars as to the part-time appointments will be announced later. The duties of the whole-time officers will be partly clinical, partly administrative; of the part-time officers clinical only. The clinical duties of the medical officers will consist in examining insured persons referred to them by Approved Societies or doctors, in advising the societies and doctors on questions of incapacity for work, and in advising doctors on questions of diagnosis and treatment. The clinical duties will thus combine those of referee and consultant. For cases of special medical difficulty specialist advice as to diagnosis or treatment will be made available for the assistance of the medical officers. The administrative duties will include examining health insurance medical certificates, records, reports and prescriptions, and making inquiries of insurance practitioners respecting any points arising on these or arising out of the examination of insured persons. The medical officers will also make such other inquiries and take such action in connexion either with the work of the Insurance Medical Service or with other branches of the work of the Ministry as the Ministry may from time to time require.

The Minister proposes to appoint in the first instance 18 whole-time officers for England and 3 for Wales. In addition there will be a small number of supervisory posts. It is contemplated that this number of whole-time officers may be increased (with a corresponding reduction in the employment of part-time officers) as soon as sufficient experience has been gained of the working of the arrangements. Although particulars of the part-time appointments are not yet available, it may be of interest to state that the work of part-time officers will be arranged, so far as the nature of the case permits, in definite half-day sessions at fixed centres; in the more remote parts of the country it will be necessary to employ doctors specially for single cases. Sessions will be held at the various centres at such periods (weekly, fortnightly, or monthly) as may be found necessary to deal with the flow of cases. So far as it can be avoided, a practitioner working part-time will not be called upon to examine cases within the district in which he ordinarily practises. The Minister is appointing a selection committee (of which the personnel will be announced shortly) to consider all applications for the appointments which are now advertised and to make recommendations to him.

SUGAR-BEET GROWING AT HOME.

LAST week a prospectus was issued to the public inviting subscriptions to a large sugar-beet enterprise in this country. With the financial prospects of this concern we have nothing to do, but a leaflet was enclosed in the prospectus setting out some facts which deserve very careful attention as bearing on the future food-supplies of this country. The promoters state that this leaflet forms part of the prospectus, but add that it was issued by the British Sugar-Beet Growers' Society, an association, we may add, supported by eminent agriculturists, economists, and scientific men. This society regards the development of sugar-beet growing as a regenerating influence in agriculture. It is claimed that increased production will result from the introduction of sugar-beet as a rotation crop. One well-known authority states that we can grow beet in England just as well as it is grown on the continent; 12 to 18 tons can be produced per acre, yielding 15 to 17 per cent. of sugar. Wherever the sugar-beet industry has been pursued we are told there has been a better agriculture, there has been more stock, there has been no supplanting or diminution of grain crops, and, finally, there has been increased employment and a greater state of prosperity for the agricultural community. An interesting fact about the beet plant is that it does not in any way exhaust the soil, the sugar being formed in the leaves from the carbon dioxide in the air and the moisture in the ground and transferred to the roots. This sounds a simple synthesis, but one which the chemist so far has not been able to effect. Sugar-beet, whether it is used for its sugar or not, is stated to provide the stock and dairy-farm with a valuable food, and after the extraction of sugar the remaining pulp, representing 50 per cent. of the original root, is highly nutritive to cattle. Experiments have shown that beet-pulp when fed to steers resulted in an approximate gain of 70 pounds per month in weight, and when fed to dairy cattle greatly increased the yield of milk. Finally, we are told that the establishment of the sugar-beet industry in Great Britain will do more to revive the prosperity of our shires and villages than any other possible agency. These authoritative statements are surely of the greatest national importance, and should receive serious and widespread consideration, with the view of getting to work without the slightest delay.

MENINGEAL SYNDROME IN SUNSTROKE.

IT may not be generally known that in severe cases of sunstroke the cerebro-spinal fluid shows marked changes. The fact is of practical importance, for ignorance of it might lead to the diagnosis of meningitis. As long ago as 1903, a French clinician, Dopter, found that, while in mild cases of sunstroke the cerebro-spinal fluid is clear, of normal tension, and does not contain cells, in severe cases it is cloudy, of increased tension, slightly albuminous, and contains cells of variable number. At first there is polynucleosis, then lymphocytosis is gradually established. In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of Jan. 11th, MM. J. Desqueyroux and Lartigaut have reported the following case:—

> A chauffeur, aged 18 years, was admitted into hospital on August 20th, 1919, for obstinate headache. A fortnight before he made a long journey under a hot sun. His face, neck, and hands became erythematous for a few days and then desquamated. On August 19th, he was again exposed to the sun under the same conditions and suffered from severe headache which obliged him to lie down. On admission he answered questions well and had no mental symptoms. The tongue was foul, the pulse was good but a little slow (60), and the temperature 103° F. He complained of persistent headache. There was stiffness of the neck in the movements

of flexion and extension, but movements of rotation were normal. Kernig's sign was marked, and the meningeal streak was persistent. The reflexes were normal, but the pupils responded sluggishly to light. Lumbar puncture was immediately performed and yielded clear fluid, not under increased tension. On centrifugalisation the deposit was slight, but microscopic examination showed undeformed red corpuscles and numerous cells, about 40 to the field. The leucocytes did not appear altered; their outlines were clear, their nuclei intact, and they preserved their tinctorial affinities. The formula was as follows: Polynuclears, 49·5 per cent.; lymphocytes, 3 per cent.; and large mononuclears, 47·5 per cent. The amount of albumin was greatly increased. Neither direct examination nor cultures showed any microbes, and the Wassermann reaction was negative. Next day the temperature fell to 99·5°, and recovery ensued.

The meningeal symptoms in this case are noteworthy, being more marked than is usual in sunstroke. The conditions found in the cerebro-spinal fluid did not altogether correspond to those described by Dopter, though, as stated by him, the puncture immediately relieved the symptoms. He did not find large mononuclear cells in any of his cases. The intact condition of the leucocytes in the cerebro-spinal fluid is an important diagnostic point. They differ entirely from those found in the ordinary forms of meningitis. The conception of "aseptic meningitis" with intact leucocytes has previously been introduced by Widal. He noted these in the "aseptic puriform meningitis" which occurs in syphilis of the central nervous system. MM. Desqueyroux and Lartigaut attribute the meningeal irritation, a veritable aseptic meningitis, to a phlogogenic influence of poisons accumulated in the organism as a result of the sunstroke. The accumulation is particularly marked in the cerebrospinal fluid. This fact, according to Dopter, explains the curative action of lumbar puncture, which both abolishes the high tension and removes a certain quantity of the poisons.

AMERICAN ANTI-TYPHUS WORK IN POLAND.

IN fighting typhus in Poland great activity was shown last autumn by the Polish Typhus Relief Expedition of the United States Army. This expedition was commanded by Colonel H. L. Gilchrist of the Medical Corp, U.S.A., and news about it has come to us in his reports.[1] He had some 30 officers and 420 men with him, and 32 trains brought over from Coblenz to Warsaw the stores bought by Poland from the American Expeditionary Force, and those contributed by the American Red Cross. Amongst the stores are mentioned 1000 tons of soap and 1,000,000 suits of underclothes. The American officers were posted to districts and worked through the Polish medical health officers. They established field columns which travelled about the country with laundry and disinfecting plants; where they had operated there were no more cases of typhus. The work done by the Americans was largely educative; they were training the Poles to do the work for themselves, that they, the Americans, might get home. They had also to commend their work to the people. There is evidence that they succeeded. Thus at Wlodawa it is observed that "much opposition was at first encountered, and the assistance of the military was required to get the people to the bathing and delousing plant; conditions have so changed it now requires the assistance of the military to keep them away. The people realise the necessity of the work and are coöperating in every way." 28,000 people are, on Nov. 15th, reported to have been washed and deloused. It is to be regretted that operations were begun so late. In the spring 40 field columns will be in action. Each sanitary train comprised 20 specialists, to superintend the bathing and delousing of 800 people daily. Petrol ran short, which delayed work, a motor repair park and chauffeur's school was established, a dentist arrived, and a quarantine cordon was established on the Eastern border. With all this food distribution was never forgotten, it was of so great help in fighting typhus. A most creditable record of industry, good organisation, and philanthropy.

THE OPERATIVE TREATMENT OF CANCER OF THE LARYNX.

THE history of external operations for the removal of malignant disease of the larynx dates from 1870, when Czerny showed by experiments on dogs the possibility of total laryngectomy, and Foulis collected 11 years later 25 cases of this operation, none of which had survived for 12 months. In consequence of these bad results an attempt was made to treat the disease by laryngo-fissure, but with no better success, for in 1887 P. Bruns collected 19 cases with 16 local recurrences and 2 immediate deaths. The illness and death of the German Emperor Frederick in 1888 stimulated interest in the subject. The importance of Krishaber's division of laryngeal malignant growths into intrinsic and extrinsic became generally recognised, and the work of Butlin and Semon established the operation of laryngo-fissure or thyrotomy, which is now acknowledged in Great Britain as the operation of choice for intrinsic cancer which has neither spread extensively to the upper aperture nor penetrated beyond the cartilaginous framework of the larynx. Semon, in 1907, reported 24 cases with 1 death and 3 recurrences, while Sir StClair Thomson reported in 1919 38 cases in his own practice without a death and with 9 recurrences. It will be seen that these results compare very favourably with operations for malignant disease in any part of the body. The important point is early diagnosis, which can usually be made easily enough if only patients be submitted to expert examination on the appearance of the one early symptom, which is hoarseness. Unfortunately, and especially in hospital practice, a large proportion of cases are not seen in time for treatment by laryngo-fissure, and the only alternatives are palliative treatment, which may include tracheotomy and gastrostomy, and laryngectomy; this operation is also the only one available for cancers which begin extrinsically, if we except a few localised growths of the arytenoid and epiglottis, which may be removed by partial operations. Hemilaryngectomy is seldom performed now in this country, principally because it does not permit the air-passages to be shut off from the wound area, a modification which has considerably lowered the mortality of total laryngectomy. It still remains true that the majority of cancers of the larynx reach the surgeon too late for removal by any operation. Total laryngectomy is a very severe operation, and cases should be carefully selected with regard both to the general health of the patient and the local condition. The growth is generally more extensive than appears on laryngoscopic examination. Any considerable glandular involvement is a contra-indication; so also is the invasion of a large part of the pharyngeal wall, though there have been a few successful cases of removal of the pharynx after preliminary gastrostomy. However, the results of the operation are steadily improving, and its position is now well established. In reviewing statistics from abroad it must be remembered that laryngectomy is often performed for cases which would be treated by laryngo-fissure in this country. Thus, Crile, in 1912, reported 24 cases with 2 deaths from operation, but does not use laryngo-fissure; Botez, of Barcelona, in 1914, collected about 200 cases and reported 17 per cent. of deaths, 52 per cent. of recurrences, and 20 per cent. of cures. Chevalier Jackson, who performs laryngo-fissure for intralaryngeal cancer, reported in 1906 that, of 29 cases of extrinsic cancer, he did 8 laryngectomies with no deaths due to the operation, 3 recurrences, and 3 cures at the end of 12 months (1 case too recent to report and 1 lost to view); and in England F. G. Harvey reported 6 cases in 1901, of which 3 were successes. It is being increasingly recognised, as the result of experience, that after this operation patients are *not* reduced to a miserable existence, to which death would be preferable. On the contrary, they can swallow without discomfort or difficulty, and most of them learn to utilise the air of the mouth and pharynx to produce a whisper easily understood, or can do so with the aid of a tube leading from the tracheal opening to the mouth. Sir Charters Symonds, in a paper which we publish in the present issue of THE LANCET, gives a description of four patients who have survived in comfort and happiness and done useful work for 8, 12, 15½, and 22 years respectively; it is to be hoped that this article will encourage doctors to submit suitable cases to operation before it is too late. Sir Charters Symonds does not give any account of the remainder of his cases of laryngectomy, and the publication of these would prove interesting, as also would a description of the details of his operative method, for the technique of this operation has by no means as yet been finally determined.

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[1] Military Surgeon, February, 1920.

RECENT ADVANCES IN VETERINARY SCIENCE.

THE work of the Division of Veterinary Science, described in the annual report of the College of Agriculture and the Agricultural Experiment Station of the University of California, has been interesting and instructive. The diagnosis of tuberculosis by the complement-fixation test, however successful in man, has proved unsatisfactory in animals; 9·3 per cent. of positive results were obtained in non-tuberculous cattle, and the test proved of no value in the diagnosis of tuberculosis in 20 hogs. It is stated to have been shown by experiments in the field that tubercle bacilli from diseased cattle became harmless in 17 days in dry weather, whereas they retain their virulence for a long time (94 to 171 days) when exposed to rain and moisture. In water-holes tuberculous material was found to remain infectious still longer, in one case for 687 days and in another for 548 days. These results have an important bearing on the disinfection of the surroundings of a tuberculous cow, for any medium which may contain infected material should obviously be freed from sensible moisture. Hypochlorite solution is largely used in disinfecting the stalls of tuberculous cattle, though wholly favourable conditions for its effective action seldom exist; nevertheless, the mechanical removal of discharges and the use of disinfectants on general principles is a sane and safe procedure. Other experimental results recorded in the report include the beneficial effect of sour-milk treatment in coccidiosis of chicks and entero-hepatitis of turkeys, the detection of avian tuberculosis by the intra-dermal test, and the expulsion of intestinal round worms from fowls by the use of 1 lb. of tobacco-dust to 50 lb. of dry mash, or a dose of 1 lb. of tobacco-dust per 100 birds. Investigation of preparturient paralysis of ewes, a troublesome disease from which many losses occur, did not reveal its cause; but as a preventive measure it is advised that the amount of dry food given to ewes during the last months of pregnancy be limited, and that they be made to rustle for their food in order to gain plenty of exercise. An interesting affection of rams denoted by enlargement of one or both testicles, and known locally as "big ball," was found post mortem to involve the whole of the genito-urinary tract and to be due to the *Bacillus pyogenes*, which produced pus and necrosis of soft tissues. A contingent of these rams, not visibly affected, or apparently recovered, only got 33⅓ per cent. of the ewes in lamb. Infection appeared to occur through the urethra. A farm is kept where students may see demonstrations of the methods of clean milk production. It is here that science ought to be able to produce excellent results without greatly upsetting or disorganising present operations. Cleanliness of cowhouses, cows, milkers, properly constructed milk-cans, and care in the distribution and storage of milk are matters of intelligence and industry, and cow-keepers, farmers, and dairymen can secure much more favourable conditions by the exercise of watchfulness and zeal.

A HOSPITAL FOR THE METROPOLITAN POLICE FORCE.

IN a report recently made to the Home Secretary by Sir C. F. Nevil Macready, Commissioner of the Metropolitan Police, it is stated that a committee, under the chairmanship of Sir Hamar Greenwood, has recently had under consideration the whole question of the medical treatment and hospital accommodation for the Force, which seemed capable of some improvement. It is hoped that in the near future the Force may be in possession of a hospital to meet the needs of all ranks, which will go far to put an end to the present system, under which officers and men requiring treatment are often kept for long periods before being able to obtain admission to one or other of the great hospitals of the metropolis.

THE BACTERIOLOGY OF TUBERCULOSIS OF THE SKIN.

IN the last number (Vol. XXIII., No. 2) of the *Journal of Pathology and Bacteriology* Dr. A. Stanley Griffith describes the results he has obtained in the examination of 52 strains of tubercle isolated from cases of subcutaneous tuberculous abscess (scrofulodermia) occurring in Middlesbrough. In 32 instances the organism was of the human type, in 20 of the bovine type, and in testing the virulence of these cultures he made the interesting discovery that 13 per cent. of the former and 20 per cent. of the latter were of definitely low virulence. Hitherto these "attenuated" strains of tubercle bacilli have hardly ever been found in man except in lupus, and it is worthy of note that seven of the eight cases of scrofulodermia from which they were obtained were suffering or subsequently suffered from some form of lupus. In the magnificent series of 1068 fully tested cultures of tubercle bacilli from human disease which Dr. Griffith and his collaborators have examined during the last ten years, these "attenuated" strains have occurred 46 times—in 36 out of 45 cases of lupus, in 8 of 52 cases of scrofulodermia, once in a cervical gland, and once in an intermuscular abscess; 24 have proved human and 22 bovine in type. We could wish that all bacteriological facts rested on such ample and strictly comparable data.

THE STORY OF SALVARSAN.

IT is possible to take the story of the war emergency in organic arsenical compounds one stage further back than was done in our leading article last week. In September, 1914, Dr. W. H. Willcox was consulted by the Board of Trade in regard to the serious situation which had arisen, no salvarsan being then available in England. Dr. Willcox, in collaboration with Professor Sir Herbert Jackson, F.R.S., and Professor A. W. Crossley, F.R.S., carried out a laborious investigation on samples of kharsivan submitted by Messrs. Burroughs, Wellcome and Co., as a result of which it was established that this product, toxicologically and clinically, was practically equal to salvarsan. Their report was issued on Oct. 24th, 1914, and following upon it kharsivan was placed on the market. Afterwards the routine testing was handed over to the Medical Research Committee.

THE Minister of Health has added to the Committee on Medical Records Mr. G. S. W. Epps, F.I.A., to represent the department of the Government Actuary.

THE house and library of the Royal Society of Medicine will be closed from Thursday, April 1st, to Tuesday, April 6th, both days inclusive.

COMPLIMENTARY DINNER TO DISTINGUISHED CHESTERFIELD MEDICAL MEN.

A complimentary dinner was held under the chairmanship of Dr. R. A. M. L. McCrea on March 11th by the medical profession of Chesterfield and district in honour of Sir Josiah Court, recently knighted, and Surgeon-Major A. W. Shea, D.S.O. Sir Josiah Court, in reply to the toast of his health, told a story typical of student wit. At Guy's in his student days Partridge, the famous surgeon, had a horse with a very long neck; so the students christened it "Longus colli"! Later he got another horse, and this one happened to have a very broad back. It was promptly dubbed "Latissimus dorsi"! In course of time this horse also disappeared, and he got another which was thoroughly well built and presented nothing upon which to "hang a label." However, the student ingenuity was not to be beaten, and one day a super-wit conceived the delightful name of "Os innominatum," by which title the horse was ever after known. In responding to the toast of "The Visitors," Professor Arthur Hall congratulated Surgeon-Major Shea on his recent honour, and pointed out that he was the senior past student of the Sheffield School of Medicine to gain a distinction on active service. A review of the distinctions gained during the war by members of the school showed a very fine record: one V.C., one C.M.G., two D.S.O.'s, one M.C. with bar, five M.C.'s, seven mentioned in despatches. The foreign decorations included the Croix de Guerre (won by a woman) and the Order of St. Sava of Serbia. The actual percentage of honours amongst the 254 old students who joined the school between 1888 and 1913, and are still living and in practice, came out, said Professor Hall, to little short of 8 per cent.

THE EGYPTIAN LUNACY DIVISION REPORT.[1]

THE review of the Report of the Lunacy Division from Egypt is very full and informing, agreeing in these respects with the last report.[2] There is great overcrowding in the institution, and, as a consequence, the premature discharge of patients results in relapse or recurrence of mental disorder, and, what is worse, we have criminal attacks of partially recovered patients, who have no longer to be treated as ordinary lunatics but as criminal lunatics. These are the salient features of the document.

The Need for More Asylums.

Dr. J. Warnock, the head of the lunacy work, sketches out some big plans as to other asylums which should be started as soon as possible. The idea that the lunatics in Egypt were very imperfectly provided for was perceived by Lord Cromer, who also recognised that there was not only a want of provision for patients, but (which, he said, was a much more important thing) a want of financial means to carry out any large measure of reform. Dr. Warnock considers that, besides another large asylum somewhere in the neighbourhood of Alexandria, there should at least be an asylum for male criminal lunatics; also an asylum for chronic, evidently incurable, but quiet lunatics, and that proper separate provision for European lunatics is needed. He also thinks that reception wards should be provided, probably in association with general hospitals, in various provincial towns. The central reception-houses should certainly be in Cairo and Alexandria, but provincial asylums also are necessary. When it is reckoned that not one-fourth of the insane in Egypt can possibly be cared for in the present asylums, it will be seen that Dr. Warnock's suggestions are quite reasonable. But, as in Lord Cromer's time, the financial difficulties will probably hinder the development of this scheme.

A short special note is made of the military asylum which was established to meet insanity occurring in the troops, as well as of the asylum at Abbasiya, which receives patients of both sexes, chiefly from Cairo and the neighbourhood, including criminal lunatics. At Khanka a certain number of the more quiet patients—all males, by the way—are sent from Cairo. At this asylum the majority of the non-city dwellers are received, the result being that a different class of patient and a different class of disease is met with in the two asylums.

There was during the last year a great increase in the number of female patients. Provision of accommodation for several classes of paying patients has steadily progressed. As has been noted before in these columns, the lunacy reports, both by Dr. Warnock and Dr. H. W. Dudgeon, are models of clearness and accuracy. All details as to expenditure are given, and the scientific work is not overlooked, though during recent years it has been greatly hindered by war conditions. The death-rate is high; as Dr. Warnock points out, the rate is 21 per cent. in Egyptian asylums.

Chief Causes of Insanity in Egypt: the Prevalence of Pellagra.

Pellagra again is represented as the chief cause of the insanity met with in Egypt, and in respect of the high mortality a special study has been made as to the relationship of pellagra to diet. This is referred to later. As to the overcrowding, in April, 1919, there were 2075 lunatics resident, whereas there was only accommodation for 1581. This leads to a high mortality-rate, a high disease-rate, a high accident-rate, and a low recovery-rate. The British staff, both medical and lay, is small, and was reduced by men being called up for war service.

In the special hospital for soldiers, during the year 125 men were admitted. Of these only five died. In the 125, dementia præcox is represesented by 27, delusional insanity by 25, melancholia 19, mania only 7. Most of the other forms of insanity were represented by quite small numbers. Nothing very noteworthy is said as to the causation of these cases, but heredity is given as being evidenced in 39 of the patients.

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[1] Report of the Ministry of the Interior, Egypt, Lunacy Division, 1918, at Abbasiya and Government Hospital for the Insane at Khanka.

[2] See THE LANCET, 1919, i., 117.

Of the patients admitted as criminals, pellagra produced 8. Theft and attempted murder were the chief crimes. There were under observation during the year 404 criminal men, 35 criminal women. 380 patients were released before recovery to make room for more acute cases. There is always a rise in the admission-rate in both hospitals for the insane when warm weather begins in April, and the admission-rate falls with the rising of the Nile and the onset of cooler weather.

As to the forms of insanity, pellagra ranks first, alcohol and epilepsy are also potent influences. General paralysis of the insane produces a good many patients among town-dwellers, so there is a much larger proportion of such cases at Cairo than at Khanka. Both men and women are represented, more women in proportion to men than are found in English asylums.

An interesting table shows the various areas in Egypt which produce the largest number of patients suffering from pellagra. Pellagra accounts for 23 per cent. of the female admissions and for 35 per cent. of the deaths among the women. Hashish produces some cases, these coming chiefly from Cairo.

Treatment : the Absence of Restraint.

A report is given of the treatment and the number of patients who are artificially fed. Again the astonishing fact is brought out that during the year no restraint whatever was used. There were very few accidents, and these only of a very trivial kind. The Wassermann test was applied at the Government pathological laboratories, and the results are certainly remarkable if they are to be taken as definite evidences of syphilis. Of the cases of general paralysis of the insane one is surprised to find that only 62 per cent. of the males gave a positive reaction, whereas 83 per cent. of the females gave a similar reaction. In other forms of insanity, especially those coming from Cairo, a very large proportion of positive reactions occurred. For instance, in cases of pellagra 30 per cent. of the men, 22 per cent. of the women, gave a positive reaction. Of 554 cases of all varieties of insanity admitted, who were tested, 28 per cent. gave a positive Wassermann reaction. This certainly is a very astonishing result.

The Government Hospital at Khanka.

At Khanka Dr. Dudgeon also had overcrowding. Here much development is proceeding, though this was delayed to a certain extent during the last four years in consequence of the war. Not only have further buildings been developed, but a great deal has been done in the way of irrigation and tree-planting, so that this desert place is becoming an oasis.

Few hypnotics were used, and no seclusion, the large grounds and out-of-door occupations being found sufficient provision for discipline. Of course, the great advantage of Khanka over Cairo is that there is a large agricultural estate. Though Dr. Dudgeon was short-handed in the matter of staff, he managed admirably. The farm has been a financial success, besides supplying an enormous amount of useful food, both for Cairo and for Khanka.

Influenza, which was epidemic, added greatly to Dr. Dudgeon's work. Besides this, he reports that there were 30 cases of a febrile disorder which he took to be dengue.

His report upon pellagra is disappointing reading. He said little good, if any, followed any form of treatment, although every variety was tried. The symptoms were taken and dealt with one by one, and yet the patients gradually died. He says emphatically once a sufferer from pellagra always a sufferer; that though there may be remissions—in some cases prolonged remissions—yet he is inclined so think the disease always recurs and, sooner or later, ends in death.

He reported four cases of datura seed poisoning. This is a new form of poisoning to British observers.

A most interesting table is given as a result of the examination of the stools of 80 consecutive cases for parasites. Of these, 49 gave positive results for various types of worm, ascaris lumbricoides heading the list with 25; ankylostoma, 8; bilharzia, 5; oxyuris, 5; trichocephalus, 4; and distoma hepaticum, 1.

Admissions and Discharges.

The usual tables of admissions and discharges are given. Of the 365 admissions, 72 owed their insanity to pellagra, and 71 to the abuse of alcohol or drugs. There were more maniacal cases here than at the parent institution. Very interesting tables, of purely local interest, refer to the districts from which the various patients were derived. In the tables of treatment a considerable increase in the use of narcotics is recorded, thus contrasting with Cairo hospital. But this Dr. Dudgeon considers to be purely a temporary matter, due to overcrowding.

In Dr. Dudgeon's report we have to notice the most satisfactory tables with details of medical and material administration, and one must congratulate him on the success of his work during trying and strenuous times.

In Part VII. of the report Professor Wilson gives a very full report on asylum diet. Though this is specially made with reference to Egypt, when circumstances make diet especially important, yet the physiological information contained in it has universal application. He recommends the addition of 45 g. of meal and 50 g. of milk to the ordinary ration. As so much more is now understood in reference to the deficiency diets and the vitamines similar observations might be made in British asylums.

Summary.

So that, to sum up, the Report of Lunacy in Egypt is satisfactory as far as the report is concerned. But the wants and the requirements are very great, and, with the disturbed state of the country, it seems that the work of the English administrators is greatly increased. Dr. Warnock, when he was in England recently, pointed out that the position of himself and other Europeans was not free from danger. We trust that the troubles will pass, and that once more there will be steady progress in relationship to lunacy in that country.

APPEAL FOR LIVERPOOL UNIVERSITY.

WITH a vision and courage that cannot fail to command the admiration of all who are interested in higher education, the University of Liverpool has launched an appeal for the sum of £1,000,000. The moving spirit behind this bold venture is the new Vice-Chancellor, Professor J. G. Adami, who, acquainted at first hand with the largesse bestowed upon the universities on the other side of the Atlantic, is seeking to awaken a similar generosity in and around Liverpool.

To mark the inauguration of the scheme a meeting was held in the Town Hall on March 12th. Lord DERBY (Chancellor of the University), who was prevented from attending, sent an appeal which was read at the meeting. It shows that this year the number of students availing themselves of the privileges of the University is more than double the total before the war. As a consequence the resources of the University are strained to the utmost, while each Faculty has had to refuse many students. The immediate needs are more class-rooms, laboratories, and workshops for students in chemistry and physics, engineering and electricity. The library, which may be termed the laboratory of the Arts students, must be enlarged. The great increase in the size of the classes calls for a corresponding increase in the staff of professors, lecturers, and demonstrators; and as students are pouring in from the surrounding districts it is necessary, if they are to enjoy that corporate life which ought to be a feature of all university education, to procure hostels or halls of residence for their accommodation. Provision must also be made for athletic grounds and a well-equipped gymnasium. The appeal concluded:—

"The University of Liverpool has proved its use. It is no longer in the experimental stage. ...... I call upon all in our

community who have its welfare and advancement at heart, upon all interested in the prosperity of Liverpool and of the district served by the University—West Lancashire and Cheshire, North Shropshire, and the counties of Flint and Denbigh, Westmorland, and Cumberland—to respond according to their means."

After an introduction from the LORD MAYOR, the President of the Council, Mr. HUGH R. RATHBONE, proposed this resolution :—

> **"That in the opinion of this meeting the needs of the University are so urgent that it is necessary to make a public appeal for funds to carry on this national work."**

Liverpool University, he said, now stood at the forefront of the modern universities of the world. No doubt the lessons of the war had been responsible for a large part of the increase in the number of students, but the desire for more extensive and higher education had been growing rapidly throughout the country before the war came.

The Importance of University Training.

Professor ADAMI, in seconding the resolution, said that men in Liverpool and elsewhere had been heard to protest that they preferred to have anyone in their business rather than a university man. It was that spirit which nearly lost us the war, the contentment with rule-of-thumb methods and easy jogging along. No business man who had studied the events of the last five years could be in doubt as to the vital importance of enlarging and equipping our modern universities. It was only when the war was half-way through that our scientific men were withdrawn from the army and the universities all over the country called upon to make up for lost time at enormous cost. Students were now pouring into the University. Before the war the high-water mark was 1178. Now they had more than 2500 students. The University was full to bursting point and the staff was too small to deal with the huge classes, and their accommodation was altogether inadequate. The University already had a notable faculty of arts, but to-day they found the students coming to them were eager for increased knowledge in the principles of great scientific industries. With the chemical industry close to their doors they must do their best to meet the urgent cry for training in chemistry. Students were also asking for higher instruction in engineering—electrical and naval. They wanted laboratories for organic and inorganic chemistry, physical chemistry, colloid chemistry, and electrolytic chemistry. The laboratories, in existence since 1881, were lamentably inadequate for present needs. For new chemical laboratories £350,000 was required, and about £100,000 was wanted for the electrical engineering department. These were only a few of the urgent needs. They had to attend to the corporate and social life of the students. The students' union was only a quarter of the size required. The variety of commercial interests that now centred in the vast trade of the city demanded that they should train their young men in such practical studies as tropical medicine, oil-bearing sands, petroleum, refrigeration, and various transport industries. The University existed to increase the enlightenment and advance the prosperity of the whole of that part of the country from which it drew its students, and he looked to Liverpool to maintain its reputation for drive and progress.

Sir WILLIAM MCCORMICK, Chairman of the Advisory Committee on University Grants, and Sir WILMOT HERRINGHAM supported the resolution, which was carried unanimously.

Sir JAMES HOPE SIMPSON, General Manager of the Bank of Liverpool and Martin's Ltd., in moving support to the appeal, said that a commercial man did not look so much to a University for the technical training of his future employees as for the development of the qualities and the outlook which best fitted a young man for the responsibilities of a business career.

The Bishop of LIVERPOOL, in supporting the motion, said that if the wage-earning classes were to receive more wages and be given more leisure they must be given higher ideals, so that wages and leisure might be spent aright; and if an enlarged electorate was to exercise its opinions rightly on the great problems of to-day it must be taught to think in terms other than those of self and class.

Mr. C. SIDNEY JONES, the treasurer of the University, announced that promises and contributions amounting to £201,500 had already been received. These included, amongst other large sums, a gift of £25,000 to endow two chairs in engineering, £20,000 towards new chemical laboratories, £20,000 for the School of Social Studies, £20,000 for building and equipment of a special home for education and educational library.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Edinburgh Post-Graduate Courses in Medicine.

IN connexion with Edinburgh University and the Royal Colleges, special advanced courses for graduates will be held during the summer and autumn terms, and during the summer vacation. These courses include such subjects as clinical therapeutics, tuberculosis, diseases of the blood, renal, alimentary, and circulatory systems, bacteriology, serology, medical and surgical anatomy, special regions of the body, venereal diseases, and child welfare. The individual courses will be held subject to a certain minimum number of graduates entering for them, and in some cases a maximum limit will also be imposed. The teaching will be carried out by teams of physicians and surgeons under the direction of the University professors and lecturers. Arrangements will also be made, if desired, for special instruction in antenatal medicine, psychiatry, and dermatology. Graduates will be allowed to take out more than one course provided that the time-table makes this possible. Each course will be of a thorough and comprehensive nature in order to supply the want of graduates desiring advanced training in a particular subject. Full particulars may be obtained from the honorary secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

Edinburgh Royal Infirmary.

The Royal Infirmary of Edinburgh is suffering from the effect of high prices and cost of labour, and additional subscriptions are urgently needed. A special effort to raise £250,000 is announced; the campaign will be launched at an early date, and probably will finish about the end of June, with a week of intensive propaganda, when every available method of publicity will be brought into play. The coöperation of all is heartily invited.

University of Aberdeen: New Professor of Botany.

Mr. W. G. Craib, M.A., has been appointed Regius Professor of Botany in the University of Aberdeen, as successor to the late Professor Trail, whose pupil he had been. In India the new professor acted temporarily as superintendent of the Botanic Gardens in Calcutta, and he was for a time assistant at Kew. Coming to Edinburgh some five years ago, he was appointed lecturer on forest botany and Indian forest trees under Professor Bayley Balfour. During the war he was specially engaged in testing timber used in the manufacture of aeroplanes.

Child-Welfare Work in Scotland.

A conference was held in the City Chambers, Edinburgh, on March 10th, under the auspices of the Scottish Federation of Mother and Child-Welfare Associations, when the subject of the importance of a pure milk-supply was discussed. Attention was drawn to Dr. Addison's statement in the House of Commons that during the year 400 additional child-welfare centres had been established throughout the country and that the infant mortality-rate for last year was 89 per 1000, the lowest on record. In 1906, before the maternity work had been commenced, the rate was 145, while in 1914 it had fallen to 105. Mr. John Fraser addressed the conference on the dangers of impure milk in producing tuberculosis in children. 30 to 40 per cent. of the children occupying surgical beds were thus affected. Ingestion of tuberculous milk might produce various local lesions or, the bacilli passing into the blood, infection might be carried to distant parts, such as the bones and joints. Precautions should be taken to render the milk harmless. The resisting power of better-class children was higher because of their superior nutrition. Dr. J. M. Lauder addressed the conference on the Production and Handling of Pure Milk, urging the establishment of a branch of the Clean Milk Society and the promotion of clean milk competitions. The eradication of tuberculous cows would require time, and he thought it would be reasonable at first to pay compensation to the people whose cows were destroyed. A resolution was carried calling on the Government to re-introduce the Tuberculosis Order and to bring into force the Milk and Dairies Act.

Panel Doctor's Action for Slander Upheld.

A libel action heard on appeal before the Lord Justice-Clerk has excited much interest. Dr. James Wylie, a doctor on the Glasgow panel, brought an action for slander against the general secretary of a local friendly society. The case centred round a certificate of incapacity given by the doctor on a date on which it was understood, erroneously, by the secretary that the patient was still away from home. The secretary thereupon stated in a letter to the Insurance Committee that a certificate had been granted by the doctor without seeing the patient and in contravention of the law. At the first instance Sheriff-Substitute D. J. Mackenzie found that the secretary's letter was defamatory and malicious, and awarded damages to the doctor. On appeal Sheriff A. O. M. Mackenzie reversed this decision on the ground that the occasion of writing the letter was privileged, and that malice had not been proved. The Division finally upheld the first judgment on the ground that the letter had been sent without due inquiry, and that the defender's recklessness in making the charge against the pursuer, without regard to its serious nature and to the want of information on which it was founded, amounted to legal malice, disentitling the defender to plead privilege. The Medical and Dental Defence Union of Scotland is to be congratulated on its successful vindication of the good name of the panel doctor.

March 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

"Carriers" of Scabies.

M. Gougerot has published some careful observations made in the dermatological department of the Hospital St. Louis. It appears that certain people, even if sharing the bed of someone suffering from scabies, do not become infected, being apparently immune from the disease. M. Gougerot has noticed this phenomenon in subjects dark or fair, thin or fat, without being able to determine the conditions which influence their immunity. Moreover, he has observed that some people who do not themselves contract scabies, though exposed to the infection, are yet capable of transmitting it to a third person. For example, a prostitute may transmit the disease without herself suffering therefrom. It seems as if the acarus could live on the skin without penetrating it; the "carriers" do not cease to be contagious until they have themselves been treated for scabies, though they present no lesion whatever. These observations, the accuracy of which are guaranteed by the reputation of M. Gougerot, have raised a good deal of controversy.

The Difficult Position of the Medical Profession in France.

The medical profession in France is at present in the throes of a crisis. The general augmentation of the cost of living consequent on the low rate of exchange has caused a considerable increase in their normal expenses. The prices of commodities, clothes, and instruments have tripled; those of servants, cars, and books have doubled. Fees have had to be increased, but the public, themselves obliged to economise on all those expenses which are not, like food and clothes, immediate necessities, compensate themselves for this increase by sending less often for the doctor. They even try to dispense with his attendance for as long as possible. In many families appeal is made to the medical lore of a relative, or advice is sought from a friend who has been a hospital nurse during the war and is proud to show off her accumulated wisdom. People resort also to proprietary medicines which can be delivered without prescriptions. These proprietary productions have had a considerable boom recently, and a proof of their prosperity is that discussions on their merits are now appearing in political journals. The middle ranks of the profession are the hardest hit. The suburban and country doctors with a family practice are relatively little affected, as are also the eminent scientists whose advice is sought by the rich. But ordinary specialists and practitioners of the better class, whose patients used to be the bourgeois families, see the number of their consultations diminishing to a degree in no way compensated for by their raised fees. At the same time it is on the doctor that the burden of rates and taxes falls most heavily, and he is unable to defend himself, as does the working man, by threatening to strike. In the districts formerly invaded by the enemy the situation is even worse. The Government has called for the coöperation of doctors, who are asked to give their services to people living under miserable conditions in caves and barracks pending the reconstruction of their houses, and unable to pay their doctors adequately. Certain practitioners have been promised fixed appointments, with free provision of motors, tyres, petrol, and surgical instruments. But the organisation is so bad that after a few months, during which they have been unable to obtain tyres or petrol, or to get repairs done to cars damaged by the bad roads, most of them have renounced the illusory advantages promised them and have gone away. Many of the regions in the north of France are thus without doctors, who have come back to join the already overcrowded profession in Paris. Several of them are leading a miserable life there, and one doctor, an officer of the Legion of Honour, was recently heard to announce to his colleagues at a congress his intention of applying for a post as sweeper in the municipal service, so as to be certain at least of a monthly salary for an eight hours' working day.

Strike in the Printing Trades.

Owing to a printers' strike hardly any medical journals have been published for the last fortnight. It is not yet known when work is to be resumed.

An Extension of the Paris Maternity Hospitals.

M. J. L. Breton, Minister of Hygiene and Social Service, accompanied by M. Desmars, Director of Public Hygiene, and by M. Legendre, has visited the asylum of Vesine, which is now empty and capable of accommodating 490 beds. He has decided to take over the asylum as an addition to the maternity hospitals of Paris, which are very overcrowded. Arrangements have been made for 40 beds at least to be ready next week, and the remainder will soon be available.

March 15th.

DEVONSHIRE TUBERCULOSIS COLONY.—At the last meeting of the Devon County Council it was stated that the council was now in a position to establish the tuberculosis colony at Hawkmoor Sanatorium for the training of tuberculous ex-Service men, and also to provide a school for children who had incipient signs of the disease. The Red Cross Society has given £18,000 to the scheme.

DORSET COUNTY HOSPITAL, DORCHESTER.—The annual meeting of the subscribers to this institution was recently held. The medical report was satisfactory, while the financial statement gave the receipts as £5782 and the expenditure as £7538. The committee made an urgent appeal for increased financial support, so that the hospital "could live on its income and not its capital." A special appeal is being made for £7000 for alterations and improvements to the hospital. The British Red Cross Society has made a grant of £2500 towards this amount, and it is hoped that the balance will shortly be raised.

Correspondence.

"Audi alteram partem."

ANÆSTHETISTS' FEES.

To the Editor of THE LANCET.

SIR,—I think the time is now suitable for drawing attention to the inadequacy of the fees which formerly have been offered to special anæsthetists for their attendances at private operations. When it is considered that men with a staff appointment at one or more hospitals often attend for many hours a week, and administer over a thousand anæsthetics a year for charity, proper payment for their skill, which will cover expenses, and yield an income proportionate to the value of their work and experience, is the least desideratum. The major operations command handsome fees for the surgeon, and should also reward the anæsthetist, primarily according to the duration of his attendance, and in some degree according to the quality of his labours.

In addition to these points, the administration of nitrous oxide and oxygen for surgical work, besides being far more expensive in apparatus and outlay than the older methods, is a far greater strain upon the faculties and attention of the administrator than anything else which has yet been attempted. Where this anæsthetic is suggested, a fee of from 15 to 20 guineas is required to pay the administrator commensurately for the undertaking. It ought not to be necessary to point out to the operating surgeons of the day that the requirement of a heavier fee by the professional anæsthetist does not diminish, but enhances, the public estimate of the value of their own performance.

I am, Sir, yours faithfully,
H. BELLAMY GARDNER.

Harley-street, W., March 14th, 1920.

REMOTE EFFECTS OF SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.

To the Editor of THE LANCET.

SIR,—The value of a discussion on the remote effects of surgical treatment of gastric and duodenal ulcer, such as that held recently at the Royal Society of Medicine,[1] depends on the comparative results obtained by various lines of treatment, and this to be of real value requires a general agreement on methods. There is at present no real standardisation of treatment; there are those who believe that these ulcers are a local condition, primary and independent of pathological conditions elsewhere; there are others who consider that they depend for their occurrence on some pre-existing infective focus—e.g., in connexion with the teeth, nose, gall-bladder, appendix, intestinal tract, &c. The former class should be content with local excision, the latter must seek for and eliminate the distant focus as well as adopt some local treatment. That there is confusion here is evidenced by the frequently expressed condemnation of excision alone as a cure for gastric ulcer, and the common belief that a permanent cure follows successful suture of a perforated gastric ulcer. Then, while there is general agreement that gastro-enterostomy is the operation of choice for duodenal ulcer, there is wide difference of opinion as to the value of gastro-enterostomy in gastric ulcer (excluding pyloric ulcer), as to the type of case in which to do partial gastrectomy, and as to the methods of performing it (Billroth II., sleeve resection, anterior Polya). Even there is no agreement on the danger or otherwise of the unabsorbable suture. I think these disagreements are due more than anything else to the neglect of the "follow up" investigations, which such a discussion as we have had does much to stimulate. The less we follow up our cases the more rosy our views on our results. I have followed up my gastric and duodenal cases fairly consistently since my first operation some 15 years ago, and though I am satisfied with the immediate results of gastro-enterostomy (my longest run without a death was 105) and of its great value in duodenal ulcer, I am becoming more critical of its value in gastric ulcer unless that ulcer is quite close to the pylorus, and I am doing more partial gastrectomies than I did.

The discussion centred on the late results of gastro-enterostomy, and particularly on the occurrence of gastro-jejunal and jejunal ulcer. I have never seen an instance of a pure jejunal ulcer, and have had only two instances of gastro-jejunal ulcer (found at re-operation) in my own practice. In both cases I found a silk suture adherent at the seat of ulceration. In view of the rarity of gastro-jejunal ulcer and the frequency with which gastro-enterostomy is performed with non-absorbable suture, it seems unreasonable to believe that the single factor of a non-absorbable suture is the cause of this complication. I am inclined to believe that a combination of four factors is necessary: (1) hyperchlorhydria persisting or recurring after operation; (2) an unabsorbable suture; (3) an undiscovered or uncured primary focus causing the original ulcer; (4) an error in technique, in this case drawing the suture too tight. It is well known that tight suturing of muscular tissue leads to local necrosis, and, indeed, is the commonest cause of failure of radical cure of inguinal hernia.

In a recent "follow up" of 50 consecutive cases of gastro-enterostomy, operated on six months ago or longer, I have been able to trace 24 out of 26 duodenal ulcer patients, of whom 19 are completely restored to health = 79 per cent., while of 24 gastric ulcer cases I have traced 19, of whom 12 are completely restored to health = 63 per cent.; of these gastric ulcer cases 2 were known to be cancer and died 6 weeks and 18 months after operation, and 2 others were considered cancerous at operation and are now quite well.

One of the commonest complaints after gastro-enterostomy is a feeling of fullness in the epigastrium directly after food. I believe this to be due to the rapid emptying of the stomach into the jejunum, and I advise all my patients for the first six months to eat small meals very slowly, and to lie down on the left side for half an hour afterwards. It would be interesting to hear the opinion of surgeons as to when we can consider a patient cured after an operation in which the ulcer is neither excised nor otherwise treated. My experience leads me to believe that if complications arise they will show some sign within two years from the operation, and I lay down as a rule, quite arbitrary I fear, that the ulcers must be considered unhealed for six months. I feel sure it is unwise, encouraged by the relief of pain and return of appetite, to allow an early return to a generous diet.

I am, Sir, yours faithfully,
Harley-street, W., March 15th, 1920. H. W. CARSON.

SLEEPING SICKNESSES.

To the Editor of THE LANCET.

SIR,—In the interests of historical accuracy may I venture to demur to the statement in your annotation of March 13th under this heading that at the combined sections of the Royal Society of Medicine in November, 1918, it was agreed to follow von Economo in the use of the word "encephalitis lethargica"? The meeting (which took place in October) was convened to discuss epidemic encephalitis, and the record in the Society's Proceedings is thus entitled. The name "encephalitis lethargica" was certainly employed by some of the speakers at the meeting, but no formal agreement with von Economo's nomenclature was proposed. Compliance in this country with von Economo's practice was a consequence of the benediction given to it by the Local Government Board, and the disuse into which, outside Great Britain, it is rapidly falling is due, not only to the objection of cumbersomeness that you raise, but to recognition of the fact pointed out by the minority in 1918, which has been recently expressed by Professor Chauffard (Académie de Médecine, séance du 17 Fév., 1920) in these words: En raison de la multiplicité des formes récemment décrites de l'encéphalite léthargique, le nom de cette maladie est devenu trop restrictif et *ne répond plus aux réalités cliniques*.

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[1] THE LANCET, March 13th, p. 598.

If, however, undue attention has been paid to the views of von Economo, it would seem that undue neglect has attended those of Mauthner, also of Vienna, who in 1890 recognised "nona" as a phase of Heine-Medin disease. And it should not escape notice that at the present time there is in Vienna an epidemic of encephalitis that, from the clinician's point of view, is like some of the Australian outbreaks in 1917–18, not lethargic but convulsive. The Viennese physicians appear now to realise that we have to do with a protean encephalomyelitis that is in epidemiological liaison with influenza, as some of us at home have consistently believed.

But it is also interesting to note that the present Viennese cases appear to be indistinguishable clinically from what was once described as "Kriebelkrankheit" and "r(h)aphania," and ascribed to ergot, radish seeds, and sour apples. The contention put forward by me in 1918 (Proc. Roy. Soc. Med., vol. xii., Sect. Hist. of Medicine) that the "Kriebelkrankheit" and raphania were really identical with the protean encephalomyelitis that almost invariably has preceded attended, and followed wide diffusions that we call influenza appears therefore fortified by the course of events.

I am, Sir, yours faithfully,

Wimpole-street, W., March 13th, 1920. F. G. CROOKSHANK.

CIRCUMCISION AND CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 20th, 1919, Mr. H. Tyrrell Gray and Dr. G. R. Pirie, in a most interesting and searching study of this stomach malformation of infants, point out the association of phimosis or preputial adhesions as a possible factor of causation of the events leading to projectile vomiting characteristic of this lesion, whether there be a definite organic or merely a spasmodic block of the pyloric end of the stomach. Later, in the issue of Feb. 21st, 1920, Mr. Joseph E. Adams relates a case where circumcision temporarily relieved all symptoms only to end fatally a week later. I notice in his concluding remarks that granting, as in his case, no actual pyloric lesion or any gastritis was present, and that circumcision temporarily relieved the symptoms, "other factors" of causation are present which one cannot expect to relieve by circumcision.

A case recently came under my care which forcibly shows the value of circumcision and yet raises doubt in the mind as to whether "other factors" are not present in the neuro-muscular mechanism of the stomach which may produce "projectile vomiting" and the train of symptoms associated with congenital pyloric stenosis. A child, aged 3 weeks, was brought to me with every one of the classical symptoms which were so lucidly arranged in Mr. Gray and Dr. Pirie's article. Complete pyloric block was confirmed by radiographic inspection. A very tight prepuce was noted. At operation the pyloric lesion was of the hard avascular type, the mass being as large as a big acorn. In my zeal to ensure success by wide section in the Rammstedt's operation, I punctured the duodenum, which was promptly repaired and reinforced by a piece of omentum. As the infant virtually died on the table, circumcision was postponed. After a struggle the infant survived, and in the second week he put on 7 oz., peptonised milk being used. On the sixteenth day sudden alarming projectile vomiting returned. To eliminate any indiscretion of feeding, albumin water only was given by mouth and saline repeated by rectum. No relief ensued and the child began to fail. I therefore circumcised him at the end of the second day. The vomiting ceased as by magic, and in six hours no further feeds were rejected.

It is now 14 days since circumcision, and the child is well and progressing steadily. Now, in this case, as far as is surgically possible, the muscular and serous coats of the pylorus and the adjacent portion of the stomach and duodenum were cleanly and thoroughly divided, so that spasm at this site was not likely to recur. And yet recurrent "projectile vomiting" recurred until relieved by circumcision.

In opening myself to criticism as to any faulty technique, I ask, "Is it possible for 'other factors' to cause projectile vomiting, such as reversed gastric peristalsis stimulated by a tight foreskin, without necessary involvement and block of the pylorus?" It seems possible, as this infant is alive and well, with no further symptoms when the recurrence of vomiting came on after surgical relief of the original pyloric spasm and obstruction had been secured by section of the muscular coats.

I am, Sir, yours faithfully,

R. ECCLES SMITH, O.B.E., M.B., F.R.C.S.

Barry, Glam., March 17th, 1920.

MYALGIC PAINS AND MANIPULATION.

To the Editor of THE LANCET.

SIR,—Mr. Haldin Davis, in your issue of Jan. 10th, suggests that there is "something in manipulative surgery," and Mr. W. H. Clayton-Greene (March 13th), admits that "the manipulative surgeon possesses some skill which he ...... lacks." May I suggest that the latter should substitute *knowledge* for *skill*. Of course, there is something in manipulative surgery, and it is to be hoped that many surgeons practise this branch of their art. I at least may claim that I have been both practising and teaching it for many years, and I believe that the same is true of other orthopædic surgeons. The trouble is that the teachers of manipulative methods, from Wharton Hood onwards, have failed to secure the ear of the profession as a whole, and that the importance of the study of the physiology of joints and muscles has never been recognised. It is perfectly true that many cases of derangement of the knee-joint can be cured without operation. Why? Because in some of them there has been no injury to the semilunar cartilages at all, and in others the damaged cartilage can be prevented from causing locking of the joint by physical treatment. Mr. Clayton-Greene appears to look upon the bone-setter as endowed with some peculiar mechanical skill which enables him to carry out manipulations which he (Mr. Clayton-Greene) cannot imitate. Surely the fallacy of this myth has long ago been exposed by Wharton Hood. The rules of manipulative methods are simple: first restore a perfectly full range of movement in the joint or joints, and, second, by appropriate exercises, assisted, when necessary, by direct faradic stimulation of the muscles, give these back their full power. Patients with derangement of the knee-joint should only be submitted to operation when continued locking of the joint takes place in spite of the fact that the mobility is full and the muscles strong.

Another condition commonly and successfully treated by the bone-setter is a chronic painful swelling of the ankle. Three times recently have I had to treat such a condition in a patient who had been subjected to prolonged fixation of the joint for alleged tuberculous disease. In each case mobilisation under an anæsthetic, followed by appropriate walking exercises, has effected a speedy cure. Adhesions on the front and outer side of the ankle were the sole cause of the trouble. I claim no special skill in manipulation: all that is necessary is the recognition of the pathology of the lesion and of the fact that interference with the normal physiological action of the foot is sufficient to account for both pain and swelling.

By all means let us have the inquiry suggested, if the bone-setters will agree. But bone-setters are not too anxious to give away the extreme simplicity of their methods, and their attitude to a committee, including surgeons able to sum the methods up, is at least doubtful.

I am, Sir, yours faithfully,

Portland-place, W., March 13th, 1920. R. C. ELMSLIE.

THE EMPLOYMENT OF FEMALE NURSES IN MENTAL HOSPITALS.

To the Editor of THE LANCET.

SIR,—In your issue of March 6th your Scottish correspondent summarised very accurately the last report of the Royal Edinburgh Asylum, but there is, unfortunately, a misstatement in the last sentence. It is there recorded that the male nurses of the asylum had submitted a demand that female nurses should no longer be allowed to attend male patients. As this question is a very important one at the present time owing to the action of the National Asylum Workers' Union, which wishes to abolish this form of nursing, I desire to say that no such action has been taken by the male nurses.—I am, Sir, yours faithfully,

GEORGE M. ROBERTSON, M.D.

Edinburgh, March 15th, 1920.

THE VAGINOTOME.

To the Editor of THE LANCET.

SIR,—Under the above heading Mr. Aleck W. Bourne describes in your issue of Feb. 21st an angled knife for cutting through the vagina after a clamp has been placed in position in radical operations for cancer of the cervix. I am afraid I have forestalled him by some six or seven years. I enclose a photograph (Fig. 1) of an identical instrument,[1] with the exception that mine is double-edged, which I have used for the period mentioned, as many can testify. Nevertheless, I prefer to use, when possible, a cautery-knife.

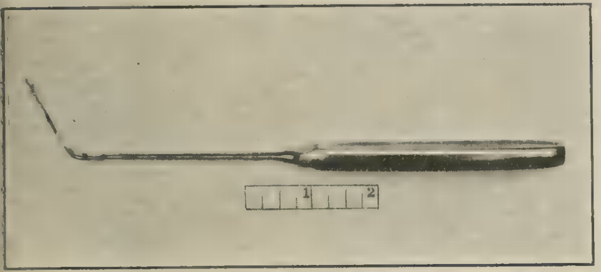

FIG. 1.—Mr. Blair Bell's vaginotome.

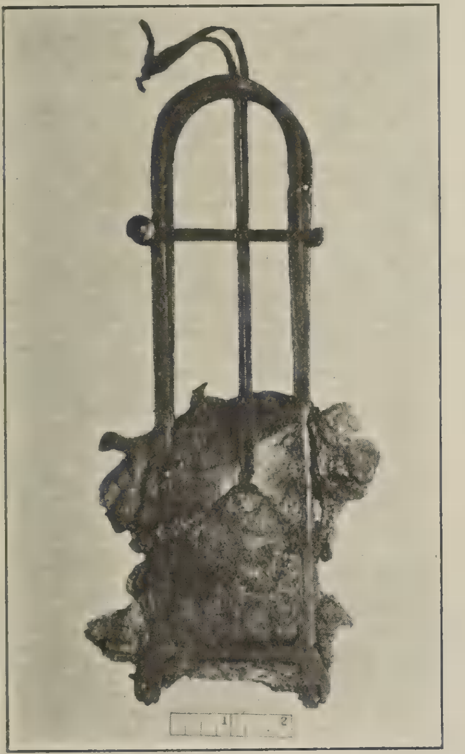

FIG. 2.—Vaginal clamp, with excised specimen.

Perhaps, before someone else invents it, I may be allowed to enclose for reproduction also a photograph (Fig. 2) of my vaginal clamp for use in radical operations for cancer of the cervix. It is only a rough model made in the laboratory, and requires certain obvious improvements when I can find an instrument-maker who can promise to get the work done. I have used this instrument for an even longer period. It embodies, I believe, sound mechanical principles and is easy of application. It will be seen that the specimen, as excised at operation, has been photographed in the clamp before being removed.

I am, Sir, yours faithfully,

Liverpool, Feb. 22nd, 1920. W. BLAIR BELL.

OSTEITIS FIBROSA.

To the Editor of THE LANCET.

SIR,—I was much interested in Mr. N. C. Lake's case of osteitis fibrosa published in THE LANCET of March 6th, and the radiogram is certainly strikingly like that of my case which you reprint with it. The suggestion in the text, however, is that the X-ray appearances would lead one to expect gross cyst formation, and it is implied that this was present in my case. A reference to my article in THE LANCET of Nov. 15th last will, however, show that such was not the case, although it is true that minute cyst formation was found under the microscope. I pointed out in that article that the femur is the common site of non-cystic osteitis fibrosa, and that the reason probably is that cyst formation is a slow degenerative change, and that the weight-bearing functions of the femur call attention to the condition in that bone before cyst formation has had time to occur. The history of Mr. Lake's cases, particularly the first one, is interesting, but there seems no definite evidence that the osteitis fibrosa did not antedate the trauma in both cases. I am, Sir, yours faithfully,

London, March 10th, 1920. E. G. SLESINGER.

INTENSIVE IODINE TREATMENT.

To the Editor of THE LANCET.

SIR,—Having read Dr. T. Bird's interesting note on this subject in THE LANCET of March 6th I wish to add my testimony as to the result of the treatment. I have used the French tincture for some years in rheumatic and arthritic cases with very great success; I cannot call to mind a single case of iodism or any untoward symptoms arising. I usually prescribe at first 2 gr. three times a day immediately after meals, gradually increasing the dose until the patient is taking 10 gr. daily. It is remarkable how the pain and swelling are relieved, and as soon as this occurs I gradually decrease the dose. After a short interval the doses are again gradually increased in old-standing cases. There is not the slightest doubt that the absence of iodide of potassium in the tincture of the French codex enabled the administration of iodine in larger doses and with better results in the foregoing cases than the administration of potassium iodide.—I am, Sir, yours faithfully,

CLAUDE ST. AUBYN-FARRER.

Harley-street, W., March 9th, 1920.

OPERATION UNDER DIFFICULTIES.

To the Editor of THE LANCET.

SIR,—The recent war has doubtless supplied many instances of surgical operations successfully performed under the most unfavourable and apparently hopeless conditions. Yet few, if any, would equal the description and circumstances of "An Operation under Difficulties," reported by Dr. Nathaniel Crichlow in THE LANCET of Feb. 7th. The remarkable and striking success which attended his impromptu efforts, though modestly attributed to the natural immunity of the Solomon Island native, completes a thrilling story of what can be achieved in a surgical emergency. As an example of an emergency operation performed under embarrassing conditions, in the heart of the West African forest at midnight, while a tornado was raging, the following incident, which occurred in the course of the Anglo-French Boundary Commission's survey of the Gold Coast and Ivory Coast Colonies in 1903, may prove of interest. In this case, too, the patient was a native, and his eventual recovery lends support to Dr. Crichlow's view of the natural resistance to septic infection, and possibly shock, displayed by the native races. The circumstances to be faced were not, indeed, as unfavourable as those confronting Dr. Crichlow, for, though the operation was a serious and difficult one, the operator had the advantage of surgical instruments and dressings with means of sterilising, also the uncertain asset of a native dispenser as chloroformist and the unskilled assistance of a French officer as dresser.

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[1] Made and kept in stock by Messrs. Alexander and Fowler, Liverpool.

The expedition on its return journey from completion of the boundary survey between the Ivory and Gold Coast Colonies had halted on the afternoon of March 8th (1903) at Ngwanda, a small forest village situated near the frontier, and composed of a collection of half-ruined native huts, only one of which was at all habitable for Europeans. At about 7 P.M., during a violent storm of wind and rain, and just as the members of the Commission were sitting down to dinner, the medical officer was suddenly called to see the native cook of one of the French officers. The boy, who was lying on a bed made of carriers' loads in a tiny bamboo hut, complained of great pain in the belly, and had had no action of the bowels for two days. Constipation and belly-ache, for which the "Livingstone Rouser" usually proved quite efficacious, were common enough troubles of daily occurrence among the morning sick. But in this instance it was timely ascertained that the boy had been ruptured for several months, although the condition had never sufficiently troubled him to seek medical advice. Examination revealed a large hernia occupying the scrotum on the right side, and about the size of a fœtal head at term, very tense, and apparently irreducible. Symptoms of strangulation had lasted an hour and he vomited soon after he was seen.

In anticipation of the probable necessity of operation, preparations were accordingly made as quickly as possible. With the patient's hips immersed in a hot bath all attempts at reduction by taxis, even when he was under the influence of chloroform, failed. Operation was therefore at once proceeded with under conditions which seemed anything but hopeful. The walls of the dilapidated hut inclined at an angle and, owing to the increasing force of wind and rain, threatened to overwhelm the occupants at any moment. To avoid such a catastrophe it was necessary to support the frail structure with propping poles as buttresses on the leeward side. Through the scantily thatched roof the deluge of rain beat its way in copious streams at various points during the greater part of the night. The only light for operating by was a reading candle-lamp with reflector. The supply of antiseptics was limited, and eventually the use of boiled rain-water was resorted to. Chloroform was very successfully administered by the native dispenser, and but for his help it would have been impossible to save the boy's life.

The necessary incision was made in the right inguinal region and the bowel was exposed. Though much congested, particularly at the place of constriction, there was no evidence of actual peritonitis or commencing gangrene, and well for the patient that resection of the gut was not called for! There was considerable difficulty in returning the distended and congested coil of gut to the abdominal cavity and in retaining it in place. This was, however, eventually successfully accomplished, and it was possible to attempt a partial closure of the inguinal ring by stitching with sterilised silk-worm gut in the hope of securing a radical cure. There was fortunately no hæmorrhage of any importance during the course of the operation, which the patient bore remarkably well. A small drainage-tube was inserted, the wound was stitched up, dressings applied, and by 1 A.M. the difficult task was over. The boy's pulse was good, he vomited twice during the remainder of a restless night, and his bowels acted at about 4 A.M. Thirst was much complained of, and partly relieved by sips of hot water. When daylight came, as his general condition was quite satisfactory, and it was impossible for him to be properly attended to in such incommodious quarters, it was considered justifiable to risk his removal to the nearest Government bungalow. He was, therefore, carefully carried by hammock to the English post at Debisu, a distance of 15 miles through the forest. The trying effect of this journey luckily led to no harm and was well tolerated. After being nursed for ten days in the Commissioner's house the patient had so far recovered as to be able to be brought down by easy stages to Djemma, some 40 miles further south, by the end of March. On April 3rd—i.e., nearly four weeks after his operation—he was allowed to get up, as the wound had completely healed.

A few days later the hernia showed signs of recurrence. It was, however, easily reduced and was kept in place by means of a truss, which by good chance it had been possible to obtain from the surgical stores of a French post within reach and to adjust to the required size and position. Before the Commission finally left the Gold Coast in May the satisfactory account was received that the boy was well and was still wearing the truss and that the hernia had not recurred. So happy an escape from his grave plight even the rosiest optimist would scarcely have ventured to predict; for under the conditions which had to be faced, the odds were anything but in favour of the patient's recovery.

I am, Sir, yours faithfully,

London March 8th, 1920. VIATOR MEDICUS.

"REMINISCENCES OF THREE CAMPAIGNS."

THE following correspondence has been forwarded to us for publication by Sir Launcelotte Gubbins.

[ENCLOSURE.]

Sir Alexander Ogston, K.C.V.O., &c.

DEAR SIR,—A few days back, when in the library of a London club, I took up a book entitled "Reminiscences of Three Campaigns," by Sir Alexander Ogston, K.C.V.O., &c., and glancing through it I came across at p. 71 (as well I can recollect) the following sentence: "An army medical officer in high command in General Kelly Kenny's army and who afterwards rose to the rank of Director-General, wrote, I believe, to headquarters complaining of my wearing the Queen's uniform without authorisation."

As during the South African War I was P.M.O. (to use the old title) on the staff of Sir Thomas Kelly Kenny, commanding the 6th Division, the above could only apply to me, and I would be glad to know your authority for making a statement which I most emphatically repudiate. Not having the honour of your acquaintance and not knowing you—even by sight—it was a matter of complete indifference whether you were dressed in uniform or not.

It is not always—to put it mildly—judicious to base an assertion on a mere belief, but it might interest you to know that, so far from being the hide-bound official you seek to portray, I was throughout the campaign entirely in favour, both on administrative and disciplinary grounds, of all civil surgeons employed with the army, being—in addition to wearing uniform—granted temporary commissions in the R.A.M.C., a course which was adopted with conspicuous success during the recent world-wide conflict.

Faithfully yours,

(Signed) LAUNCELOTTE GUBBINS,
Lieutenant-General (retired), and late
Director-General, A.M.S.

Belvedere Drive, Wimbledon, Surrey, March 6th, 1920.

Lieutenant-General Gubbins.

DEAR SIR,—I am favoured with your letter of the 6th instant, concerning a paragraph in my "Reminiscences." I greatly regret that the paragraph was inserted, and am sincerely sorry that it has caused you annoyance. I shall see that in future the paragraph is omitted or corrected.

Yours faithfully,

(Signed) ALEX. OGSTON.

252, Union-street, Aberdeen, March 11th, 1920.

THE SALARY OF POLICE SURGEONS AT BRISTOL.—The allowances of police surgeons for professional services for each member of the force has been increased from 7*s*. 6*d*. to 10*s*. per annum, and the salary of the chief police surgeon will in future be £200 a year instead of £150. These increases in remuneration do not appear to err on the liberal side.

Obituary.

CHARLES EDWARD LIESCHING, M.R.C.S., L.R.C.P.,

CONSULTING SURGEON, TIVERTON HOSPITAL.

Mr. C. E. Liesching died suddenly on March 4th, when apparently convalescent from an attack of influenza, at his residence at Tiverton. He was born in Ceylon 57 years ago, and was educated at Blundell's School, where he was in the cricket XI. and the football XV., and at St. George's Hospital. He qualified M.R.C.S. in 1885 and L.R.C.P. in the following year, and subsequently held the posts of ophthalmic and orthopædic assistant at St. George's Hospital, clinical assistant at the Victoria Hospital for Children, Chelsea, and house surgeon at the Stroud General Hospital. He returned to Tiverton as partner of the late Dr. W. R. Haydon, and soon acquired the respect and esteem of a large circle of friends and patients. Imbued with a deep love of his profession and a keen sense of duty, he took a great interest in his patients' welfare.

Mr. Liesching had contributed to THE LANCET, and took much interest in the advancement of medical and surgical knowledge. Preventive medicine appealed strongly to him, and as a member of the town council for over 20 years he constantly strove for the improvement of the local sanitation and water-supply. He was a member of the Education Committee and of the Joint Hospital Board for the isolation hospital, and consulting surgeon to the Tiverton Hospital. For some years he lectured in connexion with the St. John Ambulance Association, and on the outbreak of the war he took a leading part in organising a voluntary aid hospital, of which he was appointed medical officer. He was a magistrate for the borough of Tiverton. In addition to his many other duties, he devoted much time to religious activities, being honorary local treasurer for the British and Foreign Bible Society, superintendent of St. Paul's Sunday School, and a lay reader.

Mr. Liesching, in 1891, married his cousin Annie Kathleen, daughter of Surgeon-General W. Carden Roe, and leaves a widow, five sons, and five daughters, for whom much sympathy has been manifested in the district.

WILLIAM AUGUSTUS BONNEY, M.D. BRUX., F.R.C.S. EDIN.

THE death has occurred, at his house in Elm Park-gardens, of Dr. W. A. Bonney, at the advanced age of 80 years; he died in harness, for he contracted influenzal pneumonia while still in attendance upon patients.

William Bonney had a long connexion with South-West London. His grandfather, a solicitor at Brentford, was imprisoned in the Tower of London with Horne Tooke, then Vicar of Brentford, at the end of the eighteenth century on a charge of conspiracy—they being, it is alleged, the last political prisoners to be lodged in the Tower of London. His father, named Francis Burdett after the famous Liberal politician, was a doctor at Brentford, and Dr. Bonney served his original apprenticeship at the adjoining suburb of Twickenham. He joined the medical school of the Middlesex Hospital in 1863 and upon qualification was appointed resident obstetric officer to the hospital. In 1867 he returned to his native quarters, and for upwards of 60 years practised his profession at various addresses in Chelsea. He started practice in one of the charming old houses recently demolished in King's-road, opposite Paulton-square, but in 1880 he moved to Beaufort-street and in 1891 to Elm Park-gardens. He thus saw the complete transformation of Chelsea from a picturesque suburb to a modernised, though attractive, residential neighbourhood.

Dr. Bonney was an exceedingly good general practitioner—a man of strong opinions and great attainments. His resolution to remain abreast of professional knowledge is well shown in the dates at which he obtained his various qualifications. He first qualified as M.R.C.S. in 1866, but in 1880 he took the L.R.C.P. and L.M. of Edinburgh, and two years later the M.D. degree at Brussels. Finally, in 1895, when 54 years old, he became, by examination, a Fellow of the Royal College of Surgeons of Edinburgh, studying for the diploma at the Middlesex Hospital, where his son Victor, now a member of the honorary staff, was at that time a student.

Dr. Bonney married in 1870 the daughter of a neighbouring physician, Dr. Victor Poulain, and had three sons, two of whom are in the medical profession.

JAMES CHRONNELL, M.R.C.S., L.R.C.P.,

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER FOR HINDLEY URBAN DISTRICT.

THE death occurred on March 10th at Ash Cottage, Hindley, of Mr. James Chronnell, who was police surgeon for the Ince Division of the Lancashire county police and medical officer of health and school medical officer to the Hindley urban district. He had recently been appointed whole-time medical officer of health and school medical officer, and was retiring from the general practice he had held for 32 years to take up these duties. He was one of the best known practitioners in the district, and was held in high esteem alike by the public and his fellow practitioners. Behind a somewhat stern exterior, to those who knew him Mr. Chronnell was a true and generous friend and a wise counsellor. His large practice and his numerous public appointments occupied his time of recent years to the exclusion of his former athletic hobbies, and, though a keen motorist, his interests were almost entirely centred in his profession. His duties were carried out with the perfection of thoroughness. The increased strain of the war and the loss in action of his only son, Captain Hubert Chronnell, M.C., of the Loyal North Lancashire Regiment, helped in no small measure to undermine a strong constitution. Complications supervening on glycosuria a fortnight ago ended in a sudden attack of syncope. Mr. Chronnell is survived by his widow and an only daughter. The funeral took place on March 13th at Castle Hill Cemetery, and was largely attended. The gap left by the deceased is one that will be hard to fill. There remain of him a fragrant memory and a monument of work well done.

The Services.

ARMY MEDICAL SERVICE.

Major-Gen. Sir W. W. Pike is placed on retired pay.

Cols. E. H. Condon and A. G. Thompson retire on retired pay.

ROYAL ARMY MEDICAL CORPS.

Temp. Capts. J. W. C. Gunn, L. R. Broster, A. C. Bryson, N. McA. Gregg, and F. J. Fahy relinquish the acting rank of Major.

Temp. Capt. G. Marshall to be acting Major.

Capt. S. Robertson resigns his commission.

Capt. G. J. Keane retires, receiving a gratuity.

P. H. S. Smith, late Surgeon-Lieutenant, R.N., and Temp. Lieut. G. A. Fothergill to be temporary Captains.

G. R. Waller to be temporary Lieutenant.

Officers relinquishing their commissions:—G. W. Milne (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: A. C. Hancock, H. Dudley (acting Major). Temporary Captains retaining the rank of Captain: J. K. Clarke, T. W. Shaw, W. H. Swaffield, A. Leach, C. Dean, W. L. Locke, J. M. D. Scott.

SPECIAL RESERVE OF OFFICERS.

Capt. (acting Major) E. J. Bradley and Capt. W. B. Foley relinquish the acting rank of Major.

Capt. J. W. Mann relinquishes his commission and retains the rank of Captain.

Capt. D. McEachran relinquishes his commission.

Capt. A. W. Wells resigns his commission.

Capts. (acting Majors) J. St. G. Wilson and E. C. Hobbs relinquish the acting rank of Major on ceasing to be specially employed.

Capt. (acting Major) M. Coplans relinquishes the acting rank of Major on ceasing to hold the appointment of Deputy Assistant Director of Medical Services.

2nd London Sanitary Company: Capt. D. Smith is restored to the establishment.

3rd Southern General Hospital: Capt. R. E. Humphry relinquishes his commission and is granted the rank of Major.

ROYAL AIR FORCE.

Medical Branch.—Flight. Lieut. H. W. Scott to be acting Squadron Leader whilst employed as Squadron Leader.

The undermentioned are transferred to the unemployed list:—Capts. A. E. Collie, H. F. Squire, G. Dunderdale; Lieut. R. E. Burns.

Dental Branch.—Capt. A. C. S. Cottam is transferred to the unemployed list.

INDIAN MEDICAL SERVICE.

Majors to be Lieutenant-Colonels: (Bt. Lieut.-Col.) J. D. Graham, (temp. Lieut.-Col.) C. A. Sprawson, (Bt. Lieut.-Col.) M. Mackelvie, (acting Lieut.-Col.) W. Lapsley, (acting Lieut.-Col.) W. H. Cazaly, W. V. Coppinger, A. Spitteler, J. C. S. Oxley, (Bt. Lieut.-Col.) L. J. M. Deas, W. M. Houston, W. D. A. Keys, G. J. G. Young, J. Good, A. Chalmers, W. G. Hamilton, S. R. Godkin.

To be Lieutenant: (Temp. Capt.) Anil Chandra Chatterji (and retains the temporary rank of Captain).

The King has approved the grant of the temporary rank of Captain to the undermentioned: A. R. Upton, S. V. P. Pill.

The King has approved the resignation of Capt. J. J. Liston and the retirement of Lieut.-Col. W. H. Cazaly.

Medical News.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At the examination just concluded for the Single Licence Diploma of the College Mr. Susil Kumar Mukhopadhaya, L.M.S. Calcutta, passed the examination and was granted the diploma L.R.C.S. Edin.

At the recent Dental Examinations the following candidates passed the Final Examination and were granted the diploma L.D.S. R.C.S. Edin.:—

Ernest Joseph Millhouse, South Australia; Frederick Duncan Stephenson, Robert Haddow Mitchell, and Frederick James Duncan Cass, Edinburgh; Henry Augustus Taylor, Leith; George Thomas Paterson, Portobello; Alfred Charles Trotter, Simla, India; Arthur Brown, South Shields; and Joseph Nixon, Whitehaven.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—The annual general meeting will be held to-day, Friday, March 19th, at 3 o'clock, at the Mansion House, when the Lord Mayor will preside, and the speakers will include Lady Barrett, M.D., Miss Lilian Braithwaite, and the Rev. H. R. L. Sheppard.

LONDON TEMPERANCE HOSPITAL.—The annual meeting will be held in the out-patient hall on Friday, March 26th, at 5 P.M., the Marquis of Lincolnshire in the chair, when addresses will be delivered by Sir Alfred Pearce Gould, Dr. J. Porter Parkinson, Mr. Arthur Evans, and others.

MIDDLESEX HOSPITAL MEDICAL SOCIETY.—The annual special meeting of this society will be held at the Middlesex Hospital on Friday, March 26th, at 8.30 P.M., when Sir Humphry Rolleston will deliver an address entitled "John Smith's Sacred Anatomy." Demonstrations will be given on the following subjects: Electro-therapeutics, electro-cardiography, and certain bacteriological subjects.

MEDICAL SOCIETY OF LONDON.—The 147th anniversary dinner, held at the Wharncliffe Rooms on Wednesday, March 17th, was not made the occasion of any important pronouncement of achievement or policy, but was entirely given up to good fellowship. Mr. V. Warren Low presided, and the guests included Sir George Makins, Sir Robert Hill, Sir John Goodwin, Sir Archibald Garrod, and Sir Humphry Rolleston. In the course of the evening the Fothergillian gold medal of the society was handed to Dr. Henry Head.

NO. 53 GENERAL HOSPITAL (B.E.F.).—The first reunion dinner of officers and nursing staff will take place on Thursday next, March 25th, at the Hotel Great Central, at 7.30 for 7.45 P.M. Those who wish to be present should communicate at once with: (officers) Lieutenant-Colonel E. M. Callender, C.B.E., 73, Sussex Gardens, London, W. 2.; (nurses) Miss M. S. Riddell, Principal Matron, T.F.N.S., 80, Pall Mall, S.W. 1.

CENTENARIANS.—The deaths of Miss Margaret Davison at Tunbridge Wells, aged 102, and of Miss Elizabeth McCusker, of Greenock, in her 108th year, have recently been reported.—Mr. Robert Lanyon, of Gorran, Cornwall, who celebrated the 100th anniversary of his birthday in November last, died on March 2nd.—Mrs. Nash, of Guildford, celebrated the 100th anniversary of her birthday on March 10th.

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—The Council of the Royal Society of Medicine agreed at its meeting on March 16th to officially appoint its representatives to the Federation.

ROYAL INSTITUTION.—Among the lectures to be given at the institution after Easter are two by Major G. W. C. Kaye, on Recent Advances in X Ray Work, and four by Professor Arthur Keith on British Ethnology. The Friday evening meetings will be resumed on April 16th, when Professor J. A. McClelland will deliver a discourse on Ions and Nuclei.

THE LATE DR. S. FALKNER.—Dr. Sandbrook Falkner, who died recently at St. George's Hospital, aged 45, from septicæmia following a scratch on his thumb during an operation, was a well-known divisional surgeon to the Metropolitan Police in Fulham. He studied medicine at the London Hospital and obtained the qualification of the Conjoint Board in 1910. Dr. Falkner was radiologist to the Fulham School Clinic.

AT the last meeting of the Falmouth Borough Council, the resignation of Dr. A. Gregor, the medical officer of health, was accepted with much regret, and members of the Council stated they wished publicly to thank Dr. Gregor for his splendid services. The mayor added that they were in communication with the Ministry of Health in the hope of arranging to show their appreciation of Dr. Gregor's work in a tangible form.

Mr. Douglas H. W. Robson-Burrows, of Summerfield, Bournemouth, late a director of Messrs. Oppenheimer, Son and Co., was governor of the Royal Victoria and West Hants Hospital. He left an estate of the value of £18,544, the residue of which, exceeding £10,000, is bequeathed to the hospital.

PROVISIONAL ARTIFICIAL LEGS.—The Ministry of Pensions supply soldiers and pensioners who have suffered amputation of the leg with a provisional limb to supplement the permanent mechanical limbs that have been and are being supplied. The value of the provisional limb lies in its acting as a kind of "slipper" and as a reserve in case of accident to the mechanical limb. The Ministry is now announcing that if a pensioner has not received a second mechanical limb he is entitled to apply to his local War Pensions Committee for a provisional limb, when arrangements will be made with the nearest limb-fitting hospital, working in connexion with a Red Cross Provisional Limbs Depôt.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee, held on March 9th, 23 cases were considered, and £224 voted to 21 of the applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 50, of M.R.C.S. Eng. who practised at Ryde and died in 1915. Her only income is £40 as a daily governess, and £10 from her sister. She has had a mental breakdown, and needs an entire change. She pays £9 2*s*. a year for one unfurnished room. Voted £5.—Daughter, aged 64, of F.R.C.S. Eng. who practised at Great Dunmow and died in 1887. Only income 10*s*. a week by gardening. Lives with an old aunt who provides for her. Asks for help owing to age, ill-health, and the high cost of living. Voted £12 in 12 instalments.—Widow, aged 40, of M.B. Lond. who practised at St. Helens and died in 1918. Was left unprovided for with three children, ages 5½, 4, and 2. Income £60 a year from dividends, and £65 from letting rooms. Pays £39 for rent and rates. Relieved twice, £20. Voted £16 in two instalments.—L.R.C.P. & S. Edin., aged 73, who practised at Dovercourt. He suffers from ill-health, and his practice has fallen off since the war. Has lost an annuity of £108 owing to the war. Receives about £103 from practice, and £10 an annuity. Has one daughter who helps at home, as his wife has very bad health. Rent £35. Relieved once, £10. Voted £10.—M.R.C.S. Eng., aged 53, who practised at Liverpool and abroad. Suffers from ill-health due to foreign climate, and has had to give up practice. Lives with his aunt. Receives £24 a year from friends, and earns about 6*s*. a week by his own efforts. Rent and rates £7 4*s*. 10*d*. Relieved seven times, £60. Voted £10 in two instalments.—Widow, aged 49, of M.B. Glasg. who practised in Nottingham and died in 1914. Takes in paying guests, by which she makes about £100 a year. Has two daughters, both at boarding school. Income spent in repairing and redecorating house, previous to letting it. Rent and rates £57. Relieved twice, £22. Voted £12.—Widow, aged 66, of M.D. Edin. who practised at Edinburgh and died in 1909. Was left with four children, one now married. Children pay £78, and she receives £12 from another charity. Pays £1 a week for lodgings, and 2*s*. 6*d*. for storing furniture. Relieved 11 times, £116. Voted £12 in 12 instalments.—Daughter, aged 56, of M.R.C.S. Eng. who practised in London and died in 1895. Was left entirely without means. She receives 17*s*. a year from a small sum invested and £21 from another charity. Pays £1 1*s*. a week for board and lodging. Suffers from ill-health and is unable to work. Relieved seven times, £87. Voted £12 in 12 instalments.—Daughter, aged 58, of M.R.C.S. Eng. who practised in London and died in 1880. She lives with widowed sister and her only income is £60 from other charities. Has very bad health. Relieved 10 times, £108. Voted £12 in 12 instalments.

Subscriptions should be sent to the honorary treasurer, Sir Charters J. Symonds, C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

UNIVERSITY OF BRISTOL.—The Victoria Rooms, lifton, will be acquired by the University, and after ecessary alterations be used [illegible] a common room or social lub for the undergraduates.

THE Wellcome Historical Medical Museum, 4A, Wigmore-street, Cavendish-square, W., will be closed or cleaning and re-decoration from April 1st to 30th, nclusive.

DEVON MENTAL HOSPITAL.—The Mental Hospital ommittee of the Devon County Council has decided to rect 24 houses, in blocks of six, for the use of asylum ttendants. The cost of the scheme is estimated at about 14,855.

MAUDSLEY NEUROLOGICAL HOSPITAL: COURSE IN SYCHOLOGICAL MEDICINE.—The lectures for Part I. of the iploma of Psychological Medicine will be given on Monday, Wednesday, and Friday afternoons, from 2.30–5.30 P.M., eginning on Wednesday, March 24th. The course includes 2 lectures on the anatomy of the nervous system by Sir rederick Mott, with practical instruction and demonstraons (eight sessions of two hours each); 12 lectures on the hysiology of the nervous system by Dr. F. L. Golla, with ractical physiology (ten sessions); 10 lectures on psychology y Dr. J. P. Lowson, with practical work and demonstrations ight sessions). The fees for the whole course of Part I. and art II. are £15 15s., for either part separately £10 10s. rrangements for Part II. will be announced later. Applicaions for admission should be addressed to the Asylums fficer, 13, Arundel-street, London, W.C. 2.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.—At a meeting of the Scottish Central Midwives Board, held ecently in Edinburgh, Sir J. Halliday Croom in the chair, he following penal cases were under consideration :—

(1) Failure to notify ophthalmia neonatorum, whereby the child's es were permanently impaired, and other breaches of the rules. vidence that midwife had conducted cases for years without any ntoward circumstance arising. Suspended from practice as a idwife for three months; the local supervising authority to report n her ability to take and record temperatures and pulses.

(2) Failure to notify still-birth and other breaches of the rules. everely reprimanded.

(3) Convicted in the Police-court, Perth, of keeping an improper ouse, when she was fined 40s. Name removed from the roll.

(4) Having been in contact with a patient suffering from puerperal ver, failed to make the required notifications and to take the ecessary precautions whereby other patients were affected. ame removed from the roll.

(5) Failure to notify ophthalmia neonatorum, and other breaches f the rules. No permanent disability to the eyes of the child. hairman intimated that before proceeding with the extreme enalty of removing the name from the roll the nurse would be iven an opportunity of proving amendment. Local supervising uthority requested for a report at the end of three months.

Two other names were removed from the roll, one of a ertified midwife who had been sentenced to six months' nprisonment for theft and fraud, the other of a certified idwife sentenced to 18 months' imprisonment for using nstruments with intent to procure abortion.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF EDICINE FOR WOMEN.—Over 300 past and present students nd friends of this school assembled on March 12th at the rst reunion dinner held since before the war. In the bsence of Miss Louisa Aldrich-Blake, the Dean, through a roken kneecap, Dr. May Thorne presided, and in an dmirable speech describing the development of the school nd hospital since the last reunion, outlined plans, includng the formation of at least one clinical unit, for their rther extension. She then gave a brief summary of the ork done and the distinctions gained by members of the chool in the various fields of the war. Finally, Dr. Thorne ommended the appeal for funds—circulated as a leaflet—to he attention of the guests, and expressing her confidence of generous response, proposed the toast of the Royal Free ospital and the London School of Medicine for Women. n replying for the hospital, Dr. J. W. Carr spoke of the aried interests in the life of a modern student, and eferred to one who was recently discovered simulaneously nursing her baby, smoking a cigarette, and eading a book on surgery. Miss Sybil Widdows, B.Sc., ecturer on inorganic chemistry at the school, responded or the London School of Medicine for Women. In a peech that aroused keen interest, she gave an account f some of the work of the students and of their oyalty to the hospital. The guests present included ir Cooper Perry, Sir Thomas Barlow, and Sir Walter letcher, who responded on their behalf to the toast roposed by Lady Barrett. The health of Dr. Thorne, roposed by the Right Hon. F. D. Acland, M.P., chairman f the school, was also drunk with enthusiasm. The only rawback to an otherwise successful evening was the length f the formal proceedings which gave little time for the informal reunion of old friends, to which many past students had looked forward. The scheme outlined in the leaflet distributed to all present is the enlargement of the Royal Free Hospital to hold 450 beds. Of these 230 will be entirely free for poor patients and 220 will be allocated to persons of moderate means who can pay 3 guineas a week towards the expenses of their maintenance. The amount of money required is estimated at £500,000, to be distributed as follows: Hospital extension, £300,000; nurses' and service quarters, £50,000; equipment and maintenance charges, £100,000; school extension, £50,000. Any further information will be given by the honorary secretary, Dr. May Thorne, 8, Hunter-street, London, W.C. 1, while donations should be sent to the honorary treasurer of the appeal, Sir Francis Layland-Barratt, Bart., Royal Free Hospital, Gray's Inn-road, London, W.C. 1.

PSYCHO-NEUROLOGICAL SOCIETY.—At a committee meeting of the Lancaster Gate Medical Society (for the study of psychotherapy), held on March 1st, it was resolved that in future the society be known as the Psycho-Neurological Society, and that its object be "the study of psychological and neurological medicine." The officers for the year are: President, Dr. David Forsyth. Vice-President, Dr. W. A. Brend; honorary secretary, Dr. C. Worster-Drought; honorary treasurer, Dr. P. Bousfield. On Feb. 22nd a paper was read by Dr. Henry Head entitled "The Elements of the Psychoneuroses." An interesting discussion followed in which Drs. Forsyth, Brend, Worster. Drought, M. Culpin, R. Travers Smith, H. Linnell, and G. De Vine took part. On March 15th Dr. Travers Smith read [illegible] paper entitled "The Simulation of V.D.H." In the discussion that followed most of the speakers deplored the fact that the psychological basis of cases of "D.A.H." is so frequently overlooked.

URBAN VITAL STATISTICS.

(Week ended March 13th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 15·6, 16·4, and 16·9 in the three preceding weeks, further rose to 17·1 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 17·2, or 0·2 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·5 in Eastbourne, 7·2 in Cambridge, and 7·7 in Hornsey to 26·2 in Middlesbrough, 26·7 in South Shields, and 29 3 in Barnsley. The principal epidemic diseases caused 467 deaths, which corresponded to an annual rate of 1·4 per 1000, and comprised 199 from measles, 108 from whooping-cough, 79 from diphtheria, 49 from infantile diarrhœa, 25 from scarlet fever, 5 from enteric fever, and 2 from small-pox. Measles caused a death-rate of 2·6 in Lincoln, Grimsby and St. Helens, 3·0 in Barnsley, 3·2 in Wakefield, and 5·2 in Gloucester; whooping-cough of 5·2 in Gloucester; and diphtheria of 3·1 in Gloucester. The two fatal cases of small-pox belonged to the metropolitan borough of Poplar. The deaths from influenza, which had increased from 66 to 196 in the six preceding weeks, further rose to 230, and included 57 in London, 32 in Birmingham, 17 in Liverpool, 11 in Plymouth, and 7 each in Dudley, Manchester, and Leeds. There were 2182 cases of scarlet fever, 2045 of diphtheria, and 7 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2255, 2006, and 7 respectively at the end of the previous week. The causes of 43 deaths in the 96 towns were uncertified, of which 12 were registered in Birmingham, 4 in Liverpool, and 3 each in London and South Shields.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 15·7 in each of the two preceding weeks, rose to 16·0 per 1000. The 317 deaths in Glasgow corresponded to [illegible] annual rate of 14·9 per 1000, and included 7 each from measles and influenza, 4 from diphtheria, 2 from whooping-cough, and 1 each from small-pox, scarlet fever, and infantile diarrhœa. The 114 deaths in Edinburgh were equal to a rate of 17·4 per 1000, and included 5 from measles, 2 each from diphtheria and influenza, and 1 each from scarlet fever and infantile diarrhœa.

Irish Towns.—The 159 deaths in Dublin corresponded to an annual rate of 20 0, or 0·7 per 1000 below that recorded in the previous week, and included 6 from whooping-cough and 3 each from measles and infantile diarrhœa. The 225 deaths in Belfast were equal to a rate of 28·4 per 1000, and included 23 from influenza, 7 from measles, 4 from scarlet fever, 3 from whooping-cough, 2 each from enteric fever and diphtheria, and 1 from infantile diarrhœa.

Parliamentary Intelligence.

HOUSE OF COMMONS.

Wednesday, March 10th.

Treatment Centres for Venereal Disease.

Mr. John Davison asked the Minister of Health whether he had arranged for the keeping of records regarding the treatment centres for venereal diseases established partly or wholly at the public expense; whether he could state the number of cases that had been dealt with for the first time at such centres; and what had been the expenditure in connexion with such centres from national and local funds respectively for each year since their establishment.—Dr. Addison replied: The answer to the first part of the question is in the affirmative. The number of cases dealt with for the first time at these centres between Jan. 1st, 1917, when the first treatment centres were opened, and Dec. 31st, 1919, is approximately 175,000. The approximate expenditure of local authorities on their schemes for the diagnosis and treatment of venereal diseases during the years ended March 31st, 1917, 1918, and 1919 amounted to £18,000, £116,000, and £216,000 respectively. The estimated expenditure during the current financial year is £314,000. Of this expenditure 75 per cent. is borne by national funds and 25 per cent. by local funds.

Institutional Provision for Tuberculous Persons.

Lieutenant-Colonel Fremantle asked the Minister of Health whether the legislation necessary before he could decide the future utilisation of Poor-law infirmaries was to be expected this session; and, if not, whether he would give such definite advice to boards of guardians as would enable them to make the institutional provision urgently required for tuberculous persons without incurring expenditure on accommodation which might be unsuitable for its ultimate purpose.—Dr. Addison replied: I am not yet in a position to make any statement in regard to the first part of the question. As regards the latter part of the question, it is not the policy of the Government to encourage boards of guardians to make additional provision for tuberculous persons. I am pressing upon the public health authorities the need for providing further institutional accommodation for these cases with the aid of substantial financial assistance from the Exchequer.

Lieutenant-Colonel Fremantle: Does not that mean a large amount of institutional provision that may be superfluous when there are Poor-law institutions available for the purpose and suitable?—Dr. Addison: I do not think it does. As a matter of fact, we are several thousand beds short at the present time.

Arsenical Treatment of Syphilis.

Mr. Tyson Wilson asked the Secretary for War whether any inquests were held in respect of any of the deaths of soldiers after arsenical treatment for syphilis, referred to in the paper read by Brevet-Colonel L. W. Harrison at the meeting of the British Medical Association in April last; whether the deaths mentioned in that paper comprised all the deaths of that description occurring in the British Army during the years of the war; and if not, would he supply a complete table of figures showing how many such deaths occurred at each of the Colonial and Imperial venereal hospitals in this country and abroad.—Sir A. Williamson: I am obtaining information regarding the first part of the honourable Member's question. It is not possible to give a complete answer to the remainder of the question, as the records of many of the hospitals concerned have been, or are being, forwarded to the Medical Research Committee for compiling the medical history and medical statistics of the war.

Thursday, March 11th.

Pensions and Gratuities in the Massage Service.

Major Hills asked the Pensions Minister whether his attention had been directed to the fact that members of the Massage Service received no bonus, gratuity, or pension; whether members of this service had worked all through the war; and whether he would secure for them either a pension or a gratuity or both.—Sir L. Worthington-Evans replied: The Ministry of Pensions Massage Service has in the main been recruited from the Military Massage Service, and the personnel have worked for varying periods during the war. In common with the rest of the temporary staff of the Ministry, the Massage Service are not entitled to bonus, gratuity, or pension, and there would appear to be no ground for their being accorded exceptional treatment in this respect.

Medical Boards and Disability Pensions.

Captain Loseby asked the Pensions Minister if he was aware that medical boards still frequently refused to inform soldiers immediately after examination of the degree of disability at which they had been assessed; and if he would consider the advisability of issuing emphatic instructions upon this subject.—Sir L. Worthington-Evans replied: I am sending the honourable and gallant Member a copy of an Office Instruction, issued in December of last year, from which he will see that explicit directions have been issued to medical boards in this matter. I shall be glad to have particulars of any cases where these directions are not being observed.

Captain Loseby: Is the right honourable gentleman aware that this omission is particularly striking in the case of disabled soldiers wounded prior to 1914 who are being re-assessed?—Sir L. Worthington-Evans: I have not had my attention called to any differentiation between pre-1914 and post-1914 men, but I will see if there is any such differentiation. There is no instruction.

Small-pox in Poplar.

Mr. William Thorne asked the President of the Board of Education whether he was aware that at least 300 school children had been taken to the Poplar cleansing station at Bromley-by-Bow since the outbreak of small-pox in that district on Feb. 14th; whether the door of this cleansing station opened directly on to the infected side of the disinfecting station; whether the children's clothing was taken through this door; whether contacts since removed to hospital suffering from small-pox were brought to this station; whether a man working at the station had been removed suffering from small-pox; what action he proposed to take should any of the children sent to this station for cleansing purposes develop small-pox; whether he would see that the parents of such children were fully compensated; and whether he would arrange that any children needing cleansing should be sent to other stations while small-pox infection was likely to prevail near the station at Bromley-by-Bow.—Dr. Addison (Minister of Health) replied: The answer to the first part of the question is in the affirmative. As regards the remainder of the question, I am advised that the facts are as follows: The cleansing station is within the same ground as the disinfecting station, but the children who are taken to the cleansing station do not enter or leave the cleansing station by the door opening into the large yard, which contains also the entrance to the infected side of the disinfecting station. The children's clothing is, of course, taken through the door to the disinfecting station. The contacts with cases of small-pox are brought for necessary disinfection to a shelter which in within the same ground as the cleansing station, but is situated at some considerable distance from that station. The man referred to in the question was the driver of the disinfecting van, whose duties took him to the home of a person who had been removed suffering from small-pox. The man was aware of that fact, but nevertheless he refused to be vaccinated. I have no authority to direct the payment of any compensation to the parents of children who may contract small-pox, nor do I consider it necessary at present to close the station to children. But several cases of small-pox have recently occurred in Poplar, and it is obviously the duty of parents to see that their children are protected by vaccination.

Veterinary Surgeons Bill.

Sir Watson Cheyne moved the second reading of the Veterinary Surgeons Act (1881) Amendment Bill. He said that it was a very short Bill, produced on behalf of the Royal College of Veterinary Surgeons, the only College of its kind in the kingdom. There was an average of 70 or 80 admissions to the College every year, and the income was not anything like sufficient to pay expenses. The College was only able to carry on by voluntary contributions. There were 2300 members on the register, and 1100 of these gave one guinea a year. The proposal of the Bill was that there should not be merely an admission fee, but also an annual fee of one guinea. The Bill would also prevent unqualified men practising under the name of a veterinary dispensary or hospital.—Brigadier-General Colvin moved the rejection of the Bill. The unregistered practitioners, he said, had very large practices throughout the country, and without their assistance the farmers and other owners of stock could not possibly get on. —Mr. Jodrell seconded the rejection of the Bill. It was quite true, he said, that the measure in itself was reasonable and logical and had a great deal to commend it to everyone interested in science and in the scientific advancement of veterinary work throughout the country. Still, at the back of the Bill there was a suggestion of compulsion being put upon a large class of men to join in the working of a College which they were incapable of doing for want of previous education.—Sir H. Craik said there was no desire to prosecute unqualified men or those who occasionally employed their assistance; but it was desired that ill-equipped practitioners should be stopped from acting independently.—On a division the second reading of the Bill was agreed to by 106 votes to 51.

Friday, March 12th.

Aid for the Blind.

Mr. Tillett, in moving the second reading of the Blind (Education, Employment, and Maintenance) Bill, said that the object of the measure was to provide for the technical education of the blind by the establishment and equipment of technical schools where necessary, or by contributions to existing schools and institutions; for the employment of the blind by the establishment and equipment of workshops where necessary, or by contributions to existing institutions providing work for the blind, and for grants to augment the wages earned by persons so employed; for the expenses of the blind in institutions and hostels while under technical instruction, for their employment and maintenance away from workshops, and for the maintenance of blind persons incapacitated from earning a livelihood. There were in the United Kingdom some 30,000 dependent blind persons, of whom 10,000 were supported by Poor-law authorities, 7000 were more or less industrially employed, and 2000 were directly employed industrially. Their normal efficiency was between 35 and 50 per cent. of the average. Forty per cent. of blindness occurred after the age of 35. If the report on the C 3 nation were analysed it would show that blindness and defective sight were a great danger to the nation. This Bill would deal with the preventive, curative, and remedial sides of the question. The report of the Commission on Venereal Disease showed that we had a very serious situation to face. Twenty-five per cent. of blindness was due to gonorrhœa in the mother. He thanked the Government, the Ministry of Health, and the voluntary institutions for all they had done. Yet, looking back, he thought, as a race, we had done very little for the blind.

Dr. ADDISON, speaking for the Government, asked the House to deal with this question as a whole. They must not only deal with effects, but also with causes. He found that a very large number of the cases in the London County Council blind schools were due to preventable conditions—he referred to venereal disease in one or other of its forms. It was no exaggeration to say that while one-fifth of the blind were blind within six months of birth nearly all those cases could have been prevented. He was not satisfied that they had yet covered the ground properly in regard to the prevention of blindness. He would therefore adopt the suggestion that there should be a more methodical and comprehensive inquiry of a scientific character into the causes which led to blindness. The Board of Education was now pressing local authorities to extend the facilities for training by giving assistance to private and voluntary organisations. Parliament must take care that the interests of the blind and the sympathies of the public were not exploited by those who were not worthy of support. The Government would therefore propose to require the registration of agencies seeking support of a voluntary character for the blind. The Government were prepared to support proposals enabling county councils, borough councils, and possibly other bodies to contribute towards the provision and maintenance of workshops, hostels, and homes for the blind. It was clear to him, after careful inquiry, that blind persons after the age of 50 could not be taught anything, and in respect to that class the Government proposed to adopt a special class of relief, and to use for it the same machinery as in regard to Old-age Pensions. Between the ages of 50 and 70 blind persons would receive, subject to the same disqualifications as to income and so forth, the same benefits and weekly allowances as old-age pensioners. That would really meet the cases of 46 per cent. of the blind who were indigent and too old to be taught. He suggested that the House should give the Bill a second reading, and that he should consult those who were specially interested in the subject so that the Bill might either be remodelled or another introduced to give effect to the Government proposals.—The second reading of the Bill was carried unanimously.

MONDAY, MARCH 15TH.

Deficiency of Officers in the Indian Medical Service.

Colonel YATE asked the Secretary for India if he would state what was the present deficiency of officers in the Indian Medical Service; and how many candidates had been forthcoming in the past year.—Mr. FISHER (Minister of Education) replied: In a report received from the Government of India in July last they estimated that 166 officers were required to bring the Indian Medical Service up to the strength required by present conditions.

Sanatoriums for Uncertifiable Mental Cases.

Mr. RENDALL asked the Minister of Health what steps he intended to take in regard to the provision of sanatoriums for uncertifiable mental cases; and whether for the encouragement of voluntary patients such homes should be kept on a hospital footing, that was free from detention and wholly unconnected with lunacy administration, so as to prevent their being regarded as half-way houses to asylums.—Dr. ADDISON replied: Any scheme on the lines of my honourable friend's suggestion, with which I am entirely in sympathy, would require legislation. The question is under consideration, but I am not yet in a position to state when the necessary legislation will be introduced.

Illness on the s.s. "Dufferin."

Major MACKENZIE WOOD asked the President of the Board of Trade whether the steamship *Dufferin*, which sailed recently from Southampton to Bombay, was in an insanitary and crowded condition; whether a serious outbreak of illness, affecting 500 persons, occurred on board; and what action he proposed to take in the matter.—Mr. FISHER replied: The answer to the first part of the question is in the negative. The ship was thoroughly disinfected by the Clayton process before sailing, and the passengers were berthed on the lines adopted on passenger steamers sailing to India. In view of the shortage it is not possible to give passengers as much space as in normal conditions. I understand that a certain amount of sickness occurred during the latter part of the voyage. There is no reason for thinking that the outbreak was serious, but inquiry will be made of the Government of India.

Rabies and the Muzzling Order.

Captain TUDOR-REES asked the Parliamentary Secretary to the Ministry of Agriculture whether there were any cases of rabies now in the country; what counties were still subject to the Muzzling Order; and when he expected to be able to cancel that Order.—Sir A. BOSCAWEN replied: The last case of rabies occurred in Surrey on Feb. 18th. The Muzzling Orders are at present in force in six different parts of the country. Owing to the abnormally long incubation period which sometimes occurs in rabies it is not considered safe to free a muzzling area within a period of six to eight months from the date of the confirmation of the last case.

Tuberculosis Order, 1913.

Lieutenant-Colonel FREMANTLE asked the Parliamentary Secretary to the Ministry of Agriculture if he would state on what date the Tuberculosis Order of 1913 would come into force; whether whole-time veterinary surgeons were to be appointed to carry on the required inspections; and whether he was acting in close coöperation with the Ministry of Health in the serious intention of reducing the prevalence of tuberculosis, so far as might be possible by Government measures.—Sir A. BOSCAWEN replied: It is anticipated that the Tuberculosis Order, either in its present form or slightly amended, will come into operation at the same time as the Milk and Dairies Act. The question of employing whole-time veterinary surgeons is under consideration, but the matter is one which presents serious difficulties. The Ministries of Health and Agriculture are acting in close coöperation in this matter, and the possibility of introducing a system whereby herds may be guaranteed free from tuberculosis is under consideration by my department.

Compensation for Small-pox.

Mr. JOHN JONES asked the Minister of Health whether he was aware that there had been an outbreak of small-pox in the borough of Poplar and in other parts of East London; and whether, in order to assist in preventing the spread of such disease, he would secure the amendment of the Workmen's Compensation Act or at once introduce legislation to enable a person contracting an infectious or contagious disease through the neglect of any individual, body of persons, or Government department to obtain compensation on similar lines to that which enabled a workman to receive compensation for contracting a disease in the course of his employment.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. All practical steps are being taken to prevent the spread of the disease, but I do not see how the course suggested by the honourable Member would assist in that direction, and I could not undertake to introduce legislation on the lines suggested by the honourable Member.

TUESDAY, MARCH 16TH.

Medical Officers in Mesopotamia.

Sir WATSON CHEYNE asked the Secretary for War if he had been able to make any further arrangements to relieve the medical officers of the Royal Army Medical Corps in Mesopotamia (Special Reserve and Territorial Force) who had been there for some years; if he had satisfied himself that all these officers were required; if he was aware that at one centre, where five medical officers and five subordinates were stationed, it was stated that the medical work of each officer during the last six months had averaged ten minutes per day, and that for the last seven weeks prior to Jan. 24th they had not received a single patient; and whether, considering the great injury to their health and their future prospects resulting from their prolonged residence in Mesopotamia, he would use every endeavour to secure their transfer elsewhere.—Mr. CHURCHILL replied: Every endeavour continues to be made to relieve medical officers of the Special Reserve and Territorial Force serving in Mesopotamia who, on account of age, length of service in the East, and personal hardship, are considered by the General Officer Commanding to be eligible for release. The establishments are being reduced to the greatest possible extent, having regard to the care of the sick and the protection of the garrison; and regular Royal Army Medical Corps officers are being sent out as far as the available resources and the heavy demands to be met elsewhere permit. I am not aware of the particular cases mentioned, but if details are supplied I will obtain a full report. At the same time, however, I would point out that in Mesopotamia and Persia isolated bodies of troops are stationed, and these require to be provided with medical personnel, as the distances preclude the despatch of medical officers at short notice should their services at any time be urgently required.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ABRAHAMS, A., M.D. Camb., M.R.C.P. Lond., has been appointed Assistant Physician to Westminster Hospital.

FOURACRE, S. F., M.B., B.S. Lond., Honorary Anæsthetist to Charing Cross Hospital and to the National Dental Hospital.

HEATH, F. H. R., L.R.C.P., M.R.C.S.. Honorary Radiologist to the Dorset County Hospital, Dorchester.

HIGGINS, T. TWISTINGTON, F.R.C.S., Surgeon (with charge of Outpatients) at the Great Northern Central Hospital, Holloway.

KRAUSE, R. A., M.D., Ch.B. Edin., Chief School Medical Officer for the County of Fife.

RAFFAN, J., M.D. Aberd., F.R.C.S. Edin., Honorary Surgeon to the Huddersfield Royal Infirmary.

SMITH, H. GORDON, M.B., B.S. Lond., D.P.H. Camb., Medical Officer of Health to the Borough of Shrewsbury.

STEWART, P., M.B., C.M. Glasg., Certifying Surgeon under the Factory and Workshop Acts for Kirkliston.

SUNDELL, C. E., M.D. Lond., M.R.C.P., Physician in charge of the Children's Department at the Prince of Wales's General Hospital, London, N.

Vacancies.

For further information refer to the advertisement columns.

Ayr County Hospital.—Res. H.S. £120.

Barnsley, Beckett Hospital.—Jun. H.S. £150.

Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £250.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75 respectively.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170.

Birmingham, City Sanatorium, Yardley-road, Small Heath.—Third Asst. Res. M.O. £350.

Birmingham General Hospital.—H.S. £100.

Blackburn County Borough.—M.O.H. £1000.

Bradford Children's Hospital.—H.S. £180.

Bradford City.—Medical Woman for Ante-natal Work. £500.

Bradford Royal Infirmary.—Two H.S.'s. £200 each.

Brentwood Mental Hospital.—Med. Supt. £1000.

Brighton County Borough Sanatorium.—Res. M.O. £350.

British Guiana.—Asst. M.O. £400.

Burnley, Victoria Hospital—H.S. £250.

Cancer Hospital, Fulham-road, S.W.—Hon. Dent. S. 25 gs. Also Two H.S.'s. £150 each.

Cardiff, King Edward VII. Welsh National Memorial Association—Tuberc. P. £600.

Carlisle City.—Female Asst. M.O. £500.

Central London Ophthalmic Hospital, Judd-street, W.C.—H.S. £50.

Chelmsford, Administrative County of Essex.—Tuberc. O. £500.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Tuberc. O. £600.

Denbigh, North Wales Sanatorium,—Asst. Res. M.O. £400.

Derby, Derbyshire Royal Infirmary.—H.S. £200. Also Oph. H.S. £200.

Derbyshire Education Committee.—Sch. Dentist. £450.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dover, Royal Victoria Hospital.—H.S. £180.

Eastbourne, East Sussex County Mental Hospital.—Locum Tenens Asst. M.O. 7 guineas a week.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Cas. O. £120. Also H.S. £125.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Clin. Assts.

Evelina Hospital for Children, Southwark, S.E.—H.S. £160.

Exeter City.—Asst. M.O.H. and Asst. Sch. M.O. £500.

Glasgow Western Infirmary.—Lecturer on Electrical Diagnosis and Therapeutics.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 respectively.

Gravesend Hospital.—H.S. £200.

Great Northern Central Hospital, Holloway, N.—H.P. £150.

Greenwich, Metropolitan Borough.—Asst. M.O.H. and M.O. for Tuberculosis Dispensary. £700.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O. £150. Also Hon. Dent. S.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Res. Med. Supt. £200. Also Asst. Cas. M.O., H.P., and H.S. £50 each.

Hospital for Women, Soho-square, W.—Res. M.O. £100.

Leamington, Warwickshire and Coventry Joint Committee for Tuberculosis.—Asst. Tuberc. O. £500.

Leeds Public Dispensary.—Res. M.O. £200.

Leeds Tuberculosis Hospital, Killingbeck.—Med. Supt. £500.

Liverpool, City Infectious Hospitals.—Asst. Res. M.O. £250.

Liverpool Education Committee.—Two Asst. Sch. M.O.'s. £350.

Liverpool, Stanley Hospital.—Two H.S.'s. £150.

Liverpool University, Faculty of Medicine.—Lecturer in Histolog and Assoc. Prof. in Cytology.

Liverpool, Walton Institution, Rice-lane.—Asst. Res. M.O. £280+£7

Loughborough and District General Hospital and Dispensary.—Res. H.S. £200.

Macclesfield County Asylum.—Asst. M.O. £350.

Macclesfield General Infirmary. Res. H.S. £200.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.

Manchester Northern Hospital for Women and Children, Park place, Cheetham Hill-road.—Hon. P.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.

Ministry of Health, Whitehall, S.W.—M.O.'s. £1000.

Monmouthshire County Council.—Pathol. and Bacteriol. £750.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Out-patient M.O. £90.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150. Also Hon. Gynæcologist.

Newark Hospital and Dispensary.—Res. H.S. £200.

Newcastle-upon-Tyne, Durham University College of Medicine.—Curator of the Museum. £250.

Oldham County Borough.—Asst. M.O. £500.

Perth Royal Infirmary.—H.S. 6 guineas per week.

Peterborough Infirmary.—Hon. P., Hon. Asst. P., and Hon. Asst. S.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Prince of Wales's General Hospital, Tottenham, N.—H.P. and H.S. £200 each. Also Jun. H.P. and Jun. H.S. £120 each.

Queen Mary's Hospital for East End, Stratford, E.—H.P.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.P. £100.

Reading, Royal Berkshire Hospital.—H.P. and Second H.S. £20 each.

Redhill, Surrey, Royal Earlswood Institution.—Asst. M.O. £400.

Royal Dental Hospital of London, Leicester-square, W.—Asst. Dent. S.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100.

Royal Institute of Public Health, 37, Russell-square, W.C.—Senior Demonstrator of Bacteriology.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. £200.

Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.—Asst. H.S.

St. Mary's Hospital for Women and Children, Plaistow, E.—S. £100.

St. Thomas's Hospital.—Two Sen. Asst. M.O.'s. £600. Also Two Jun. Asst. M.O.'s. £350. Also Bacteriol. £600.

Salford Royal Hospital.—Res. S.O. £250. H.S. £150.

Scarborough Hospital and Dispensary.—Two H.S.'s £150.

Sheffield Royal Infirmary.—Hon. Radiologist. £100.

Shirlett, near Much Wenlock, King Edward VII. Memorial Sanatorium.—Res. Med. Supt. £450.

Shrewsbury, Royal Salop Infirmary.—H.S. £250.

South London Hospital for Women, South Side, Clapham Common, S.W.—Asst. P.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Stoke-on-Trent, North Staffordshire Infirmary.—Two H.S.'s. £200 each.

Stoke-upon-Trent Union.—Res. M.O. £600.

Sunderland Royal Infirmary—Jun. H.S. £200.

Sunderland, Royal Infirmary, Children's Hospital.—Female Jun. Res. M.O. £150.

Surrey County Council.—Asst. M.O.H. £600.

Throat Hospital, Golden-square, W.—Surgical Registrar.

University of London.—External Examiners.

Wakefield General Hospital.—Jun. H.S. £150.

Wallasey, Victoria Central Hospital and Wallasey Dispensary.—H.S. £250.

Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E.—Asst. Tuberc. O. £500.

Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Castle Acre and at Consett.

THE Home Secretary gives notice that in consequence of the resignation of Mr. H. S. Walker, Specialist Medical Referee under the Workmen's Compensation Act, 1906, for ophthalmic cases in County Court Circuits Nos. 12 and 14, the appointment held by him is vacant. Applications for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than April 3rd, 1920.

Births, Marriages, and Deaths.

BIRTHS.

BELLINGHAM-SMITH.—On March 9th, at 74, Kensington Park-road, W., the wife of Eric Bellingham-Smith, M.D., M.R.C.P. Lond., of a son.

BURTON.—On March 15th, at Dullatur, Camberley, the wife of Brevet Lieutenant-Colonel Colin Burton, D.S.O., R.A.S.C., of a son.

CLAPHAM.—On March 10th, at Madeley House, Park-road, Peterborough, the wife of Harold Clapham, M.R.C.S., L.R.C.P., of a daughter.

REINHOLD.—On March 6th, at Cairo, the wife of Major C. H. Reinhold, M.C., I.M.S., of a son.

DEATHS.

CHRONNELL.—On March 10th, at Hindley, James Chronnell, M.R.C.S., L.R.C.P.

CUFFEY.—On Feb. 25th, at Port Said, Egypt, Edward Cuffey, M.B., O.B.E.

DOCKRELL.—On March 15th, Benjamin Morgan Dockrell, M.A., M.D., M.A.O., Senior Physician, St. John's Hospital, Leicester-square, in his 61st year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

OYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Tuesday, March 23rd.

)CIAL EVENING: at 8.30 P.M.

Dr. G. Murray Levick will show some of his famous Penguin Slides taken in the Antarctic during the Scott Expedition.

The Library will be open, and various objects of interest will be exhibited. Music and light refreshments. The President, Sir Humphry Rolleston, and Lady Rolleston will receive guests at 8.30 P.M. It is hoped there will be a good attendance of Fellows and their friends, who will be cordially welcomed.

MEETINGS OF SECTIONS.

Monday, March 22nd.

DONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.

Casual Communications will be read by—

Mr. Frank Coleman, Mr. F. H. Doubleday, Mr. Montagu Hopson, Mr. S. F. St. J. Steadman, Mr. Harry Stobie, and Mr. Watson Turner.

Short Paper: Mr. Gerald B. Ash: Pyorrhœa.

Tuesday, March 23rd.

EDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.

Dr. Mackenzie Wallis will introduce the subject of "Nonnephritic Albuminuria," followed by Dr. Batty Shaw and Dr. Tyson.

Friday, March 26th.

PIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, Major Greenwood): at 8.30 P.M.

Paper: Dr. S. Monckton-Copeman, F.R.S.: Small-pox.

Those Members of the Section who wish to attend the dinner at the Welbeck Palace Hotel, at 7 P.M., are requested to notify Dr. Major Greenwood, Lister Institute, Chelsea Gardens, S.W. 1, not later than March 24th.

EDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 22nd.—8.30 P.M., Discussion on the Re-education of the Amputated, introduced by Mr. Muirhead Little.

HILD STUDY SOCIETY, LONDON, at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY, March 25th.—6 P.M., Mrs. E. S. Chesser, M.D.: Adolescence and the Continuation Schools.

EDICAL OFFICERS OF SCHOOLS ASSOCIATION, 11, Chandos-street, Cavendish-square, W.

FRIDAY, March 26th.—8 P.M., Paper: Dr. G. H. Lock: Care of Minor Ailments in School Children. A discussion will follow.

ECTURES, ADDRESSES, DEMONSTRATIONS, &c.

OYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY, March 23rd, AND THURSDAY.—5 P.M., Lumleian Lectures:—Sir J. Rose Bradford, K.C.M.G., C.B.: The Clinical Experiences of a Physician during the Campaign in France and Flanders 1914-1919. (Lectures II. and III.)

ING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

FRIDAY, March 26th.—9.15 P.M., Mr. H. Playfair: Syphilis in Antenatal and Obstetric Practice.

ATIONAL HOSPITAL FOR DISEASES OF THE HEART, POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, March 22nd.—11 A.M., Out-patients: Dr. Goodall. 2 P.M. In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Moon: Heart Affections and the Labour Market.

THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, March 23rd.—2 P.M., Demonstration:—Dr. F. G. Crookshank: Cases illustrating Joint Disease in Children. 4.30 P.M., Lecture:—Mr. C. H. Hayton: Inflammatory Diseases of the Middle Ear.

ATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, March 22nd.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Ward Cases: Dr. Aldren Turner.

TUESDAY, March 23rd.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Tooth: Encephalitis.

WEDNESDAY, March 24th.—2 P.M., Mr. Elmquist: Demonstration of Fraenkel's Exercises. 3.30 P.M., Dr. Collier: Aphasia and Apraxia. (II.)

THURSDAY, March 25th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Ward Cases: Dr. Saunders.

FRIDAY, March 26th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Mr. Elmquist: Demonstration of Fraenkel's Exercises.

SATURDAY, March 27th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

SATURDAY, March 20th.—10 A.M., Mr. Banks Davis: Operations of the Throat, Nose and Ear.

MONDAY, March 22nd.—12.15 P.M., Mr. Burnford: Pathological Demonstration.

TUESDAY.—5 P.M., Mr. T. Gray: Congenital Hypertrophic Stenosis of the Pylorus.

WEDNESDAY.—5 P.M., Mr. Gibb: Glaucoma.

THURSDAY.—5 P.M., Mr. Baldwin: Practical Surgery.

FRIDAY.—5 P.M., Special Lecture:—Sir W. Arbuthnot Lane, Bart.: Intestinal Stasis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, March 24th.—4.30 P.M., Dr. Burrell: Vital Capacity in Pulmonary Tuberculosis.

CHADWICK PUBLIC LECTURES, in the Lecture Room, Royal Society of Arts, John-street, Adelphi, W.C.

MONDAY, March 22nd.—5.15 P.M., Lecture:—General Sir John Goodwin, K.C.B., C.M.G., D.S.O.: Military Hygiene in Peace and War. III., The Future of Army Hygiene (Its Relation to the Hygiene of the Civil Community). (Illustrated by lantern slides.)

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at Sheffield Royal Hospital.

MONDAY, March 22nd.—3.30 P.M., Dr. Nutt: Ionic Medication: Radium Therapy, &c.

TUESDAY.—4 P.M., Dr. Hay: Ophthalmic Operations.

WEDNESDAY.—3.30 P.M., Dr. Wilkinson: Cerebral Complications.

THURSDAY.—3.30 P.M., Dr. Skinner: Methods of Treatment of Ear and Nose Suppurations.

FRIDAY.—4 P.M., Dr. Hay: Common Mistakes in Diagnosis and Treatment of Eye Diseases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, March 23rd.—4.30 P.M., Mr. C. Roberts: Chronic Inflammations and Cysts of the Breast.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, March 25th.—4.30 P.M., Mr. Platt: Demonstrations on the Principles of the Treatment of Fractures. (At the Ancoats Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Children's Hospital.

THURSDAY, March 25th.—4 P.M., Clinical Demonstration.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. G. G. Alderson, Kenilworth.

B.—Major S. T. Beggs, R.A.M.C.; Sir J. Byers, Belfast; Dr. H. W. Bailie, Belfast; Prof. W. B. Bell, Liverpool; Dr. C. L. Browne, South Mimms; Sir C. Ballance, Lond.; Dr. H. K. Brade-Birks, Salford; Colonel R. J. Blackham; Dr. G. Blacker, Lond.; Bengal Medical Association, Calcutta, Hon. Sec of; Prof. A. E. Boycott, Radlett; Dr. Browdy, Manchester; Sir J. R. Bradford, Lond.; Mr. H. A. Barker, Lond.; Dr. W. L. Brown, Lond.; Mr. H. E. A. Boldero, Lond.

C.—Dr. F. G. Chandler, Lond.; Dr. C. Coombs, Bristol; Chadwick Trust, Lond.; Lieut.-Col. E. M. Callender, Lond.; Dr. S. D. Clippingdale, Lond.; Mr. H. W. Carson, Lond.; Mr. W. Clarke, Geneva; Mr. S. Cumberland, Lond.; Messrs. W. H. and L. Collingridge, Lond.

D.—Dr. V. Dickinson, Lond.

E.—Dr. E. Evans, Cardiff; Mr. R. C. Elmslie, Lond.; Mr. W. G. Evans, Bath; Mr. D. L. Eadie, Edinburgh.

F.—Dr. A. Feiling, Lond.; Factories, Chief Inspector of, Lond.; Dr. H. French, Lond.; Food Education Society, Lond.

G.—Mr. J. A. Gorsky, Lond.; Dr. J. Guy, Edinburgh; General Medical Council, Lond.; Great Northern Central Hospital, Lond., Sec. of; Dr. H. B. Gardner, Lond.

H.—Mr. P. B. Hoeber, New York.

I.—Industrial Settlements (Incorporated), Lond., Sec. of.

K.—King's College Hospital Medical School, Lond., Sec. of; Dr. A. Keen, Lond.; Dr. G. L. Keynes, Lond.

L.—London Temperance Hospital; London Dermatological Society.

M.—Medical Benevolent Fund Guild, Lond.; Medical Society of London; Maudsley Neurological Hospital, Lond.; Dr. R. W. Mackenna, Liverpool; Ministry of Health, Lond.; Dr. H. Maclean, Lond.; Medical Officers of Schools Association, Lond., Hon. Sec. of; Mr. G. Mayall, Bolton; Dr. E. Mellanby, Lond.; Ministry of Labour, Lond.; Dr. A. E. Mahood, Clifton; Ministry of Pensions, Lond.; Dr. H. B. Mylvaganam, Bangalore.

N.—Mr. R. K. Nesbit, Hindley; Mr. F. L. Nicholls, Cambridge; National Hospital for the Paralysed and Epileptic, Lond.; *New York Medical Journal*; New Transport Co., Lond.; Northampton, School Medical Officer of; National Safety Council, Chicago; Dr. H. P. Newsholme, Ripon.

O.—Messrs. Oppenheimer, Son, and Co., Lond.

P.—Dr. R. H. Paramore, Rugby; Dr. W. E. Peacock, Lond.; Mr. V. G. Plarr, Lond.; Dr. H. R. Prentice, Lond.

R.—Royal Society of Arts, Lond.; Dr. N. Raw, Lond.; Royal Medical Benevolent Fund, Lond., Sec. of; Royal Society of Medicine, Lond.; Royal Institution, Lond.; Dr. D. Rankin, Lond.; Dr. D. M. Ross, Bournemouth; Messrs. Reynolds and Branson, Leeds; Dr. J. D. Rolleston, Lond.; Dr. D. G. Rice-Oxley, Lond.; Royal British Nurses Association, Lond.; Dr. G. M. Robertson, Edinburgh

S.—Save the Children Fund, Lond., Sec. of; Society for the Study of Inebriety, Lond.; Dr. T. E. Sandall, Oxford; Mr. E. G. Slesinger, Lond.; Dr. E. F. Skinner, Sheffield; Dr. A. Schachner, Louisville; Scottish Board of Health, Edinburgh; Dr. C. St. Aubyn-Farrer, Lond.; Dr. R. E. Smith, Lond.

T.—Dr. H. A. Treadgold, Lond.; Dr. A. H. Thompson, Lond.; Messrs. Turnbull and Findlay, Glasgow.

W.—Dr. G. Ward, Sevenoaks; Dr. K. M. Walker, Lond.; Dr. E. H. Worth, Lond.; Wellcome Historical Museum, Lond., Curator of; Walsall General Hospital, Sec. of; Dr. C. J. F. Westman, Lond.; Miss S. M. Weaver, Leeds; Dr. C. Worster-Drought, Lond.

Y.—Mr. M. Yearsley, Lond.

Notes, Short Comments, and Answers to Correspondents.

ARMY HYGIENE DURING THE GREAT WAR.[1]

BY SIR JOHN GOODWIN,
DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

AFTER referring to the personal hygiene of the troops, and drawing attention to the importance of the prophylactic as well as actual reparative work carried out by the dental department, Sir John Goodwin referred to the problems of the clothing and equipment of the soldier and the provision of the three main essentials to life—namely, food, water, and air.

Problems Affecting the Individual.

In the past the military ration had been arranged upon more or less empirical lines after actual test marches. During the war, however, the importance of avoiding waste led to more exact studies of the needs of the troops by the method of indirect calorimetry. The enormous army has throughout been fed in such a manner as to provide the energy and heat required for effective fighting and to avoid outbreaks of disease traceable to the diet. For the minor outbreaks of neuritis and scurvy in those most distant areas, Mesopotamia and North Russia, the dependence on preserved food-supplies from home were accountable. Steps were quickly taken, however, to provide the necessary accessory food factors, at first by germinating pulses and by yeast, later by the intensive local cultivation of fresh foodstuffs, of as much value to the native inhabitants as to the troops. The numerous cookery schools have been attended by officers of every grade of seniority, that they might be able so to supervise the preparation of the rations issued as to provide the most suitable, varied, and appreciated meals. Moreover, it was a matter of absolute necessity to supply men in the trenches with hot meals, and this was ensured by means of jacketed hot-boxes.

Water-supply.—The question of a pure water-supply is one of the first importance. Filter candles were found to be unsuitable for active service conditions, and were replaced by chlorination. The net result of war experience was the established value for sterilisation purposes of chloride of lime in the form of bleaching powder. As the war proceeded the need for the provision to advancing troops of properly treated water in large quantities led to the development of special water-tank companies. These units are capable of collecting, filtering under pressure through sand, sterilising by chlorine gas (by means of an ingenious regulator), and transporting large quantities of water wherever the motor-lorry could move. In the same way, barges for use along the waterways of the various theatres of war were developed.

The question of *air and ventilation* are of equal importance. Pflüger's experiments showed the range of droplet infection from mouth to mouth to be somewhere within 1½ metres, and this is the range that should represent the minimum proximity of men's heads in barracks or beds. The importance of that knowledge had sometimes been submerged by reason of national necessity. However, two instances have recently shown that the principle involved—now known as "spacing-out"—cannot be disregarded. These were (1) the cerebro-spinal meningitis outbreak starting in 1915; (2) the influenza outbreak of 1918. In both these instances a populace was unavoidably concentrated, with a resultant reduction in the spacing-out, and an opportunity arose for "mouth-to-mouth" or "droplet" infection. In the cerebro-spinal meningitis outbreak, immediate spacing-out of the affected troops produced a rapid fall in the case and carrier incidence; in the same way, it was effective in reducing the high incidence of influenza on its last appearance as a pandemic. It may be of interest to note that the experience of the war has led to a reconsideration and still further enlargement of the cubic space allowed the troops, particularly overseas, and also of the correlated questions of pharyngeal and pulmonary disinfection. The importance of pharyngeal disinfection was early recognised, and all transports were provided with special inhalation chambers. It is intended that these shall be a permanent feature of transports in the future, and it is of interest in this connexion to note the recent encouraging reports from industrial works of the value of certain gases, inhaled in insensible but definite amounts, in inhibiting the incidence of influenza and allied respiratory disorders.

Problems Affecting Particular Groups.

So much, then, for questions affecting all the troops. Now we come to the more special problems affecting particular groups of soldiery, and perhaps the most important is the control of outbreaks of infectious disease. Cases of infectious disease in war areas were immediately isolated in well-staffed and equipped isolation hospitals behind the line. Special dysentery centres were arranged whither all cases of diarrhœa were immediately removed and kept under observation; if diagnosed as dysentery they were notified, evacuated down the line and isolated; otherwise they were returned to duty on recovery. The administrative sanitarian was thus enabled to locate foci of infection, to trace continuity between areas, and generally to decide where executive sanitary action was necessary.

Epidemic disease—with the exception of the influenza pandemic—was noticeably absent, and the care taken to filter off unfits on the lines of communications went far to explain the remarkable freedom from disease of the men in the line. The problem of the excremental diseases was approached in two ways—firstly, by the general inoculation of the troops so as to provide a relatively high immunity to enteric, and secondly, by the careful disposal of all infected matter. No little credit must be accorded to regimental and medical officers for their part in educating the men to the value of inoculation, and in overcoming the natural—or inspired—reluctance to what has in our army remained a purely voluntary measure.

The associated problems included the safe disposal of all excrement, the purity of the water-supply, the safeguarding from dust and flies of food stores, and the elimination so far as possible of flies. Incineration of excremental matter proved to be the surest and safest method of disposal in the absence of a water-carriage system, and this method has developed into something of an exact science.

The fly question, especially in the Eastern theatres, was a vast and difficult one, in view of the quantity of horse litter inevitably associated with the army, and frequently of the tactical or climatic impossibility of burning such fertile breeding matter. Ingenious methods other than burning included the utilisation of horse litter as the basis of desert roads, built up by the addition of a top layer of clay, which becomes compacted under the pressure of traffic; or, again, the compacting of litter into wind-proof walls utilised as screens for the stables of animals otherwise unprotected. The study of substances intended for fly destruction, including the "bottle flies" and "flesh flies," associated with the corpses in No Man's Land led to the adoption of the most satisfactory materials; and the knowledge thus gained will doubtless prove of value to the community as a whole.

Insect-borne Diseases.

There was a considerable wastage in all theatres of war from insect-borne diseases of different types. In France, much of the minor sickness of the troops was traceable to louse infestation, from various septic skin conditions to trench fever. The sufferings of our Allies the Serbs from typhus fever also emphasised the necessity for a vigorous campaign of disinfestation. The problem was met largely by the provision of facilities for bathing at frequent intervals and by the increase in facilities for disinfecting personal clothing and blankets. Later dependence was largely placed on portable spray baths. The development in methods of disinfection by steam in the latter part of the war culminated in the use of the Foden-Thresh apparatus, comprising two large Thresh disinfecting chambers mounted on and operated under slight pressure by a Foden steam-lorry. The apparatus could move rapidly to any area in which it was required, commence operations at once by turning the steam into the chambers, and then drive to a fresh centre for operations. In areas where road conditions were less suitable for lorry transports disinfectors were improvised from the native wine barrels; or, in the more settled units, improvised hot-air disinfectors were adapted to dug-out conditions. The value of hot air is now established, and the latest "Orr hot-air huts" are models of efficient disinfectors.

The steps taken in the prevention of malaria, the sanitary arrangements in the trenches and in billeting areas were well organised, and the Sanitary Section also did valuable service in effecting certain economies. For example, by the careful collection in special cold-water grease-traps of wash-up fat, and of the scrap-fat and bone-fat rendered in cookhouses, a bulk of crude fat was obtainable which proved of immense use in the manufacture of soap and of glycerine.

Among the adjunct means of sanitary control were the hospital clinical and mobile laboratories, both "bacteriological" and "hygienic"; the latter were mounted on motor-lorries and capable of proceeding rapidly to undertake investigations in any part of the area served by them. Attention must also be drawn to the preparation of the millions of doses of vaccines used throughout the armies, as well as to the researches on dysentery, epidemic jaundice, and other subjects. The Medical Research Committee is ublishing many of the results of war studies. In 1916 the lied Governments formed the Inter-Allied Sanitary Com- ission to discuss common problems, to make known the sults of effort or experiment, and so to effect mutual öperation. Certain delegates were appointed to meet onthly for discussion in greater detail than was possible at e full annual meetings. Many of the Allied nations were us enabled to apply measures of prevention, successfully rried out by others, with which they were at the time familiar.

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[1] Being an abstract of the second of three Chadwick lectures on Military Hygiene in Peace and War, delivered on March 15th, 1920. The first lecture appeared in THE LANCET of March 13th.

By the labours of the united profession, all doing that work hich was required of them and which local authority nsidered most immediately necessary, the troops in this ar were served as few armies have ever before been served.

HOME HEALTH RESORTS.

A LETTER in THE LANCET of Feb. 28th announced the rthcoming International Congress at Monaco, at which the bjects to be discussed are Medical Hydrology and Geology, ygiene and Climatology, Spas and Thalasso-therapy. Those ho attend will hold a watching brief for the health sorts of Great Britain, and the secretary of the Organising mmittee asks whether, in so far as the benefit of cure is derived from complete change in the patient's bits and surroundings, it is not time for Great itain to cater for those who used to flock to Central urope. As long ago as 1908 Dr. Neville Wood sug- sted in our columns that if the Channel proved an cellent barrier between our patients and their worries mongst which may usually be included their relatives and iends) it should also be made to serve reciprocally for our reign visitors. He pointed out that while it is obviously eless to try to keep in England those who yearn for the rm sun in mid-winter we should redress the adverse lance by encouraging an interchange of invalids. Most unicipalities exhaust themselves in the vain attempt to ep the British from foreign spas, but make no efforts to pularise their towns abroad. The literature describing our as is written in English only. Foreign manuals of European alth resorts hardly mention them, not through ill-will, it in many cases after an unsuccessful endeavour to obtain e necessary information. There has been a development Anglophilia among the French and Italian during the ar, and if the amenities of some of our spas were only own to them there would probably be no lack of visitors.

If we review our position it becomes clear that we cannot mpete with the triple combination of climate, scenery, d elegance offered by Biarritz, St. Moritz, and the Riviera. gain, the waters of our inland resorts are in no way peculiar this country, but are of types equally well represented on e continent. But as we have pointed out before, one big lvantage exists in that nearly every place in Great Britain at its best in the hot summer months, at the season when ntinental places are often at their worst, at any rate from e standpoint of active exercise in the open air. There are w chronic diseases now in which the treatment does not clude mild exercise in the fresh air. Modern research and periment have shown its special value, for example, even heart cases, where complete rest was formerly advised.

Among the attractions of our health resorts are the cellent links by which they are usually surrounded. To e golf enthusiast weather matters little; moreover, since cent researches have established the tonic value of cool oving air, our much-abused climate may in the future be ught even for that variability so dreaded in the past.

As regards balneo-therapy our hydropathic institutions ed fear no comparisons, but with such a long and tractive coastline it is surely in thalasso-therapy that we ould attempt to specialise. In this respect we are not ry enterprising. Towns which have spent much money elaborate parades and drives along the sea-front make it little provision for the convenience of sea-bathers. The ivate tent or hut, which is now supplanting the old thing machine, has at least one disadvantage—that embers of the family cannot be in the water all at the me time, and that the prearranged time-table often leads a condition of blue shivers in the last man out.

Colonials visiting our seaside places are often amazed at e primitive arrangements. In a Natal resort, for instance, e bathing-huts are roomy and well lighted, fitted with elves and mirrors as well as hooks, and divided into an ner carpeted and an outer sloped compartment. The tter is provided with a bucket of fresh water and a small stern on the roof for a shower-bath, while the attendant rns on an electric hair-drying apparatus if desired.

We do not suggest that the pleasure of a swim is really uch enhanced by all this luxury, but while most of us are epared to bathe off the beach, with a rock as shelter, reigners are undoubtedly attracted by elaborate dressing- oms. Few will deny that the sticky, gritty feeling which mains after a rub with a towel the size of a handkerchief tracts somewhat from the refreshment of a sea bath. For e rest, swimming regattas and water-polo might be couraged by the presentation of challenge cups, and on certain shores a modified form of surfing could probably be introduced.

There is one other point needing attention if foreigners are to be attracted—the food at our seaside hotels. The farce of a long, elaborate menu, written in language as unfamiliar to our Allies as to ourselves, and as doubtful in origin as are the dishes it indicates, should be abandoned. The substitution of a three-course dinner would be welcomed, we believe, by all visitors, of whatever nationality. Foreigners do not want so-called French pastries and sauces in England, and appreciate a complete change of diet. The only complaint they are likely to make is of the monotony of the vegetables served.

NATIONAL SCHEME FOR THE EMPLOYMENT OF DISABLED MEN.

THE first edition of the King's National Roll, which has just appeared, contains the names of some 10,000 employers who have undertaken to provide work for disabled men under the National Scheme. This represents in the aggregate 1,500,000 workpeople, including nearly 90,000 disabled men. Since Dec. 31st, when the list went to press, it is stated that the number of employers registered has grown to over 12,000, but the supply of disabled men is unhappily by no means exhausted. There are thousands still in hospital, for whom livelihood employment will have to be found. Copies of the Roll may be seen at employment exchanges, free libraries, and other public buildings, and are to be purchased from H.M. Stationery Office at 1*s*. 6*d*.

THE POSITION OF POTASH SUPPLIES.

IN an article in this column in THE LANCET of Feb. 14th we referred to the possibility of potash deposits being found in certain English counties where rock-salt occurs in abundance. The Germans were long ago persuaded that potassium salts were probably associated with the common salt deposits in that country, and that proved to be the case. Such a finding, we suggested, should stimulate investigation in our salt districts. We have since received an interesting communication from the Alsace-Lorraine Development and Trading Company, who state that the Alsatian deposits of potash salts extend over an area of 50,600 acres. They are situated in the region of Cernay and South Mulhouse, and consist of layers of a thickness of from 8 to 18 feet at a depth of from 1600 to 2300 feet. According to the most conservative estimates, the lower layer alone should yield 2000 million tons of potash salts, equal to 300 millions of pure potash (K_2O), which is about 400 times, it is stated, the annual pre-war consumption of the whole world. This should be good news for the agricultural industry. Sylvinite, the name of the deposit, is a mixture of rock-salt and potassium chloride, the yield of the latter being from 50 to 60 per cent. The output will be increased as the damaged state in which the Germans left certain of the mines is restored.

The following note in the *Economic Review* (March 3rd) is of interest in connexion with these particulars :—

> *Potash Output in Alsace.*
>
> According to the *Berl. Tagbl.*, the potash output in Alsace varies from 4000 to 5000 t. per day. Large orders are coming in, but, owing to the continued transport difficulties, barely 2000 to 3000 t. can be despatched daily. The purchasing syndicate of the Alsatian Potash Works is at Mulhouse, and bears the name of "Société Commerciale des Potasses d'Alsace-Lorraine." (*Frankf. Ztg.*, Feb. 14th, m. ii.)

France has evidently gained a large asset in the mineral resources of her restored provinces, and the breakdown of the great German potash monopoly of pre-war times is clearly threatened.

THE VALUE OF REST IN THE TREATMENT OF GONORRHŒA.

IN a recent number of the *Medical Journal of Australia* appears an article by Major W. L. Potter, of the Australian Medical Service, on the Influence of Treatment and Rest on Gonorrhœa. It is based on the study of 365 acute cases treated during a long period of duty in 1916. Particular attention has been paid by the author to the incidence of epididymitis, since the occurrence of this complication in a case doubles the period required for its cure. A comparison is made of the various systems of treatment employed at No. 5 Australian General Hospital, the value of the different methods of treatment being determined by two criteria: first, the percentage of cases developing epididymitis; secondly, the time taken to effect a cure. A system of treatment aimed to avoid complications such as epididymitis may raise the average time taken to effect a cure. Conversely the adoption of a more drastic system of treatment may shorten the average time of cure, but at the same time produce a greater number of complications. The ideal system is therefore one designed to cure the urethritis in the shortest period compatible with the avoidance of complications. As the result of a careful analysis of the series of cases under his care Major Potter has arrived at the following conclusions: (1) that suitable treatment has a favourable effect on disease; (2) that the most important factors in the avoidance of complications are rest and abstention from urethro-vesical irrigation during the earlier stages of the disease; (3) that diet and medicines are of secondary importance; (4) that prostatic massage and vaccine therapy are of no utility; (5) that no system of outdoor treatment will produce satisfactory results unless facilities for rest are provided.

PUBLIC HEALTH IN CALCUTTA, 1918.

THE number of deaths in Calcutta during 1918 reached "the appalling total" of 31,371, equivalent to [illegible] death-rate of 35 per 1000, calculated on the census population of 1911; this ratio was higher than in any year since 1907, and in strong contrast to that of 1917, which was 23·8, the lowest hitherto recorded. The ratios require to be modified according to the increase of population during seven years since the census, but the actual number of deaths compared with those of the previous year (21,360) points unmistakably to the presence of a severe and widespread epidemic—i.e., influenza—which broke out in June, and again with increased virulence in September. The deaths registered as due to this cause were 4115, but Dr. H. M. Crake, the medical officer of health, considers that at least 2000 should be added to this figure, as there was an excess mortality of 2500 under the headings of respiratory diseases and fevers. The ratios of death from all causes varied in different parts of the city from 11·7 in Park-street Ward to 44·7 in Entally, and 64 in Kidderpur; in 20 out of the 25 wards the ratios were over 30 per 1000, whereas in 1917 only one ward had a ratio over 30. The female mortality was 44·1, compared with 30·6 for males, but there was not such a relative disparity between the sex ratios as in 1917, when they were respectively 32·1 and 19·8, or as in the quinquennium 1913–17, when they were 36·2 and 22·5 Though the actual difference is greater, the relative difference is not so marked. The male ratio (1917) was increased by 54 per cent.; that amongst females by 37 per cent. About two-thirds of the inhabitants are Hindus, with whom the death-rate was 37·5; among Mohammedans it was 30·5; among non-Asiatic Christians, 25·6. It is stated that these latter had no immunity from influenza attacks, but apparently an increased power of resistance and lessened liability to complications and sequelæ. The heavy mortality among females, especially from tuberculosis (2·9 per 1000, compared with 1·6 among males), due to the insanitary purdah system, by which the women are confined in the almost invariably ill-lighted and ill-ventilated zenana, has been repeatedly pointed out.

Infantile Mortality.

The infantile mortality ratio was 280 per 1000 registered births. In three wards it exceeded 400 per 1000, but defective birth registration is considered to be partly responsible for these "appalling figures. ...... With excessive overcrowding, a local outbreak of small-pox, and two epidemics of influenza, the babies born in this densely-packed agglomeration of insanitary buildings have had very little chance of surviving." In Jorabagan Ward the ratio was 581 per 1000. Of the 5096 deaths among infants in the whole city 1791 died before they were a week old, nearly all from "congenital debility" (769), premature birth (545), or tetanus neonatorum (395). It is pointed out that the prevention of this last-named cause is perfectly feasible; "it is unknown amongst cases attended by Corporation midwives." Bronchitis caused 1483 infantile deaths (29 per cent. of total), due to insufficient clothing; but diarrhœa caused only 280 deaths (5·4 per cent.), because breast-feeding is almost universal.

Plague, Enteric, Influenza, &c.

Plague deaths numbered 210 (0·23 per 1000) compared with 81 in 1917. The disease was imported by immigrants from Rajputana and elsewhere into the already crowded Burra Bazar district, and was localised in this and the immediately surrounding sections. Cholera caused 1526 deaths (1·7 per 1000), also a considerable increase on the previous year (866 deaths, 0·96 per 1000). All districts of the city were affected, but most deaths occurred in the wards bordering on the river or on the grossly polluted stream known as Tolly's Nullah, which is really an open sewer. It is, however, "considered peculiarly sacred [i.e., by Hindus], and bathing in it is an essential part of various festivals, which attract numerous pilgrims." The deaths among Hindus numbered 1295 (2·1 per 1000), among Mohammedans 214 (0·88 per 1000).

Under enteric fever were registered 345 deaths (0·38 per 1000), a considerable increase over the mortality from this disease during the four years immediately preceding, in which the ratio had varied between 0·21 and 0·28; in 1913 it had been 0·39. The deaths occurred chiefly in July and October; the epidemic prevalence of influenza showed itself in June and September. Dr. Crake very reasonably supposes that this influenza prevalence lowered the powers of resistance, so that many cases of enteric died that, influenza being absent, would have recovered. "A lowering of the general powers of resistance not only means that the minimal lethal dose of a bacterial toxin is relatively smaller, it also means that the amount of infection capable of causing the disease is also relatively smaller. In other words, it is not only easier to kill a man whose powers of resistance are lowered, it is also easier to infect him. ...... Hence the general rise in the mortality, under almost all headings, which has followed the outbreaks of influenza." This lowering of vitality is probably the most serious factor in influenza infection, and treatment appropriate to the condition that may ensue is of the greatest importance. It is to be noted that "Non-Asiatics and Anglo-Indians," with a ratio of 0·65 deaths per 1000 from enteric fever, suffered much more than Hindus (0·48), and these, again, more than Mohammedans (0·10); there was probably increased susceptibility, as Dr. Crake suggests. Malaria showed some increase, 1·3 deaths per 1000, compared with 1·1 in 1917. The wards most affected by malaria and "other fevers" are suburban wards with tanks, surface drains, &c., that provi mosquito breeding-places.

Increase in Tuberculosis Death-rate.

Tuberculosis had declined from a death-rate of 2·5 per 1000 i 1913 to 1·7 in 1917; in 1918 it rose to 2 per 1000, the number of deat being 1826. No doubt this was due to the influenza outbreak. I two wards (Entally and Beniapuker) the rate exceeded 3 per 100 Ill-ventilated houses and promiscuous expectoration make sprea of the disease practically inevitable. Indian Christians, with mortality of 4·8 per 1000, suffer much more than Mohammeda (2·1) or Hindus (1·9). Being cut off by their orthodox relatives o embracing Christianity, they often have a hard struggle to live, an overcrowd certain localities; everyone "spits promiscuously a over the place," and spread of the disease is inevitable. In the ag period 15 to 20 years the male death-rate from tuberculosis was 1 and for females 4·9 per 1000; from 20 to 30 years the ratios were 1 and 4·9; from 30 to 40 years 2·2 and 4·7. "The chief cause of th appalling mortality amongst women is the purdah system mai tained in insanitary houses in the slums of a great city."

Respiratory Diseases.

Respiratory diseases caused 6914 deaths, compared with 47 deaths in the previous year, the respective ratios being 7·7 and 5·3 p 1000. The bulk of the increase was due to the influenza epidemic resulting in fatal bronchitis or pneumonia In Kidderpur Ward th respiratory death-rate was 15 per 1000, that for influenza being 22·7 the actual numbers for these two diseases were 329 and 496 respe tively. The beginnings of the influenza epidemic in June could n be definitely localised; the early cases were of a mild characte and the disease is not compulsorily notifiable. "The lightning-lik rapidity with which it spread all over the city baffles descriptio ...... All classes of the community in all parts of the city wer attacked." The municipal services were disorganised, approx mately 50 per cent. of the staff being infected. Three types wer distinguished: (*a*) typical, with the usual symptoms; (*b*) a for resembling dengue, with fever, pains all over the body, profu perspiration, and marked prostration; (*c*) intestinal, with vomiti and diarrhœa. A second outbreak occurred in the middle September, which lasted until December. The disease sprea slowly, but respiratory complications were more frequent and th case-mortality considerably higher. Over a hundred relief centr were established, as well as 50 travelling dispensaries. Fi types were distinguished: (*a*) simple febrile; (*b*) respirator (bronchitis, pneumonia); (*c*) circulatory (high fever, tendency syncope, generally fatal); (*d*) abdominal (diarrhœa, dysenter (*e*) nervous (delirium, coma, death). A total of 164,695 patients we treated up to Dec. 31st, 1918. According to one estimate the cas mortality rate was 24·5 per 1000; according to another 34·4 per 100 Dr. Crake considers that the mean of these two rates—that is, abo 3 per cent.—is approximately correct.

Summary of the Report.

Many other subjects are dealt with in Dr. Crake's repor which is fully illustrated with tables and diagrams, and ha a plan of Calcutta, showing the relative mortality in th various wards. The difficulties of administration that hav to be overcome in dealing with epidemic emergencies suc as have been mentioned would not be lessened in a climat like that of Calcutta, where the mean *minimum* monthl temperature was above 75° F. from May to Octobe inclusive, and the mean *maximum* was above 87° fro March to October inclusive. In June there was [illegible] fall 16 in. of rain, and the mean minimum temperature wa 78°, conditions most favourable for the incubation pathogenic germs. The effectual carrying out of the detail of sanitary administration among a population such [illegible] tha of Calcutta and under these climatic conditions present difficulties that are obvious. The medical officer of healt is to be congratulated on the excellent results that hav been attained.

THE R.A.M.C. VIEWS ON VENERY.

To the Editor of THE LANCET.

SIR,—I have lately been reading [illegible] book by Stephe Graham entitled "A Private in the Guards," and foun therein (pp. 255–6) a statement which ought to be challenged He writes that the army chaplains "could not inveig against lust because the medical officer was of opinion tha Nature's needs must be satisfied." "Sexual intercourse wa regarded as a physical necessity for the men. Beside being the medical point of view, it became the officia army point of view as well, and we were often told i lectures that it was natural, and all we had to do was to us the safeguards and preventatives which were at our disposal to save us from disease." "Hundreds of thousand were even encouraged to go with impure women." believe, Sir, the exact contrary is held by the bulk of th medical profession in this matter. Such a travesty of trut seems calculated to have a pernicious effect on the reader of this remarkable book. If the author really has an backers in the R.A.M.C. they should speak for themselves.

I am, Sir, yours faithfully,
H. KENNEDY SMYTH, M.B., B.Ch., D.P.H.,
Umtali, Rhodesia, Jan. 31st, 1920. District Surgeon.

In Memoriam.—The names of the Representative Committee constituted to put into execution a scheme fo erecting a permanent memorial to the officers, non-commissioned officers, and men of the Royal Army Medical Corp who fell in the war (referred to in the annotation i THE LANCET of March 6th) were printed in THE LANCE of May 3rd, 1919, p. 766.

Hunterian Lecture

ON THE

LATE RESULTS OF THE SURGICAL TREATMENT OF CHRONIC ULCERS OF THE STOMACH AND DUODENUM.

Delivered before the Royal College of Surgeons of England on Feb. 11th, 1920,

BY JAMES SHERREN, C.B.E., F.R.C.S.ENG.,
HUNTERIAN PROFESSOR AND MEMBER OF COUNCIL, ROYAL COLLEGE OF SURGEONS OF ENGLAND; SURGEON TO THE LONDON HOSPITAL, ETC.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—That the surgical treatment of chronic gastric and duodenal ulcer leads to the immediate alleviation of symptoms is now one of the commonplaces of surgery, and has even found its way into contemporary fiction. Every surgeon, however, who follows up his cases meets with those in whom, after a period of immediate relief, symptoms reappear. These are usually trivial and of short duration, but are occasionally serious and long continued, the result of ulceration in the region of the anastomosis. So much does this group appeal to the imagination that our junior vice-president lectured here four years ago on "Ulcers Old and New: Jejunal for Duodenal."[1]

I am confining myself to consideration of the results in cases personally operated upon. Only in this way is there the assurance that the technique and method of treatment, although varying with increased experience, remained identical in each series, and that the condition and situation of the ulcer is accurately known.

Surgical treatment has not, and cannot, become mechanical; every chronic ulcer needs individual consideration. It is not a case of "Here is a chronic ulcer, let us do a gastro-jejunostomy." This fact requires emphasis, as it is by no means unusual for a case to be sent to the surgeon, not for treatment, but with the request that gastro-jejunostomy should be performed. The impression that this operation is a cure for all gastric ills led to its falling to a certain extent into disrepute.

A recent paper by Dr. Robert Hutchison[2] on Disappointments after Gastro-jejunostomy led to an interesting discussion in subsequent issues of the *British Medical Journal*, and an adequate surgical summing up by Sir Berkeley Moynihan.[3]

The result of the surgical treatment of chronic ulcer of the stomach and duodenum is equal to that of any major operation in surgery. Gastro-jejunostomy will fail if carried out in unsuitable cases, just as removal of the appendix fails to cure pain in the right iliac fossa that is not due to disease of that viscus; even in suitable cases the accident of an adhesion may lead to an attack of intestinal obstruction years later.

I intend to review the result in those patients who have been operated on over two years. I have selected this period for two reasons: (1) in many of the cases under discussion adequate rest in bed and medical treatment would have been followed by the disappearance of symptoms for a considerable time; it is safe to say that it would not be as long as two years; (2) it is most unusual for symptoms to reappear for the first time at an interval of more than two years after operation, and most of the cases of secondary ulceration have occurred within this period. In 1912[4] I reviewed 72 consecutive cases operated on more than two years before. I have been able to trace all those of chronic duodenal ulcer that I was then in touch with. All that were quite well have remained so, and two who were not absolutely well now call themselves cured. Two also of the cases operated upon for chronic gastric ulcer who were not "quite well" have now lost their minor discomforts; one only of those who were successes have had further symptoms; this patient died of abdominal malignant disease seven years after operation. Four have been lost sight of after remaining well for 5, 6, and 11 years. Three died of other causes, and in two I was able to obtain a post mortem; in both the ulcer had healed and the anastomosis was perfect. I therefore do not consider it is running any grave risk of exaggeration if I consider those remaining well for two years as successes.

THE OPERATION OF CHOICE.

That gastro-jejunostomy alone is sufficient in many cases is certain. Hutchison[5] states: "The modern operation of gastro-jejunostomy when performed for chronic ulcer of the stomach or duodenum is usually so satisfactory in its results that a surgeon is justified in promising the patient complete relief from his symptoms if he submits to it." This would be still more in accord with present experience if the words "of gastro-jejunostomy" were omitted.

In 1914,[6] in a contribution to a discussion on the treatment of chronic gastric and duodenal ulcers, I said: "The operation to be performed on any individual case can only be determined after the abdomen is opened." This holds good at the present time, although gastro-jejunostomy is still the operation of choice in the majority of cases. When this operation is performed it should be the posterior no-loop vertical. This will bring about permanent healing in "free" ulcers; those that have perforated and have an adherent base or floor formed usually of liver or pancreas do not completely heal after this procedure alone. When gastro-jejunostomy is indicated and the posterior method is impossible, the anterior no-loop that I described in 1907[7] gives equally good results. I have done this in 40 cases, the majority before 1912. Most that I then considered suitable I now treat by partial gastrectomy.

Gastro-jejunostomy acts by its influence on gastric motility and secretion. It secures a more rapid emptying of the stomach, and so prevents or counteracts pyloric spasm, and should abolish the excessive acidity which, with gastric stasis, Bolton[8] has shown to be a cause of chronic ulceration.

It is important that the opening should be large (I make it from 2½ to 3½ inches), and situated so as to give the best result in lowering acidity. The site of election is at the cardiac end of the pyloric segment of the stomach, immediately above the duodeno-jejunal flexure. In 11 instances in which for various reasons I have had to make the opening nearer the pylorus than usual, the post-operative lowering of gastric acidity has not been so marked, and has in some instances been wanting. A temporary increase has even been noted. The following is an example:—

T. H., a male, aged 36. Operation Dec. 17th, 1918, for chronic duodenal ulcer. The opening was made nearer the pylorus than usual on account of close adhesion of jejunum to the under surface of transverse mesocolon. Gastric acidity before operation. Free HCl 0·18. Total acidity 71. Jan. 1st, 1919: Free HCl 0·22. Total acidity 77. I had to readmit him five months later with some return of pain. He is now free from symptoms with a gastric acidity 0·15 and 65.

I have notes of 174 patients in whom test meals were given both before and after gastro-jejunostomy only had been done. All the examinations were carried out in the London Hospital Clinical Laboratory, under Dr. P. N. Panton, by the method he described with Dr. H. L. Tidy.[9] The normal gastric acidity by this method is free HCl 0·08 to 0·12, and total acidity between 40 and 50. I am much indebted to Dr. Panton and his assistants for the care with which these investigations have been made.

In 159 patients gastric acidity was lowered. In 99 free HCl was absent and total acidity below 30. The most marked reduction has occurred in those cases of chronic gastric ulcer situated high on the lesser curvature, so that the gastro-jejunostomy has had to be performed well to its cardiac side. It was this observation that led me to the conclusion that the greatest post-operative lowering of acidity was obtained when the opening was toward the cardiac end of the stomach. The result within a few weeks is striking.

On May 29th, 1918, I operated on a male, aged 42, with a chronic ulcer high on the lesser curvature. Gastric acidity was reduced from 0·1 and 48 on May 13th to absence of free HCl and 7 on June 24th.

On Dec. 14th, 1917, I operated on a woman of 35 for a similar condition. Her gastric acidity fell from 0·09 and 57 on Dec. 11th to absence of free HCl and 10 on Dec. 29th.

The same reduction is seen after operation for chronic duodenal ulcer.

W. E. S., a man of 37. Operation 16/7/16. Gastric acidity on July 7th 0·16 and 74. On July 25th absence of free HCl, total acidity 17.

E. N., a woman, aged 45. Operation 18/12/17. Test meal Dec. 10th, 0·22 and 80; Jan. 1st, absence of free HCl and total acidity 18.

When the anterior long-loop operation is done acidity is not so effectually lowered.

W. H. C., male, aged 37. Operation for chronic duodenal ulcer on June 17th, 1919. The transverse colon was closely adherent to the posterior abdominal wall and I had to do the antecolic operation. (It is never wise to dissect the colon away in these cases, better to run the slight risk of jejunal ulcer than the enormous one of regurgitant vomiting.) Gastric acidity on June 13th, 0·16 and 60; on July 7, 0·09 and 46.

The reduction of acidity is as great when the anterior no-loop operation is done well to the cardiac end of the stomach.

On May 6th, 1913, I operated on a man of 68 with a very scarred ulcer on the lesser curvature, adherent posteriorly but not perforated. His condition would not permit the ideal treatment of partial gastrectomy. I therefore did the anterior no-loop operation as room could not be obtained posteriorly. Acidity was reduced from 0·18 and 71 to 0·0 and 31 three weeks after operation.

I believe that this reduction in gastric acidity as the result of gastrojejunostomy is permanent. The opportunity, however, of examining gastric contents at remote periods after operation is difficult to make in the absence of symptoms. I have been able to do so in 26 patients from four to nine years after operation, and found gastric acidity still low. The following is an illustrative case:—

Male, aged 39. Operation July 7th, 1912. Gastro-jejunostomy for chronic duodenal ulcer. Before operation gastric acidity 0·2 and 79. Three weeks later, absent and 32, and in September, 1919, absence of free HCl, total acidity 25.

In none of the cases was pyloric exclusion practised. I do not consider that it adds in any way to the efficacy of the operation. It has no bearing on the healing of the ulcer, and the continued patency of the new opening has no relation to pyloric stenosis. I have post-mortem records of eight of my cases from two to nine years after operation for ulcer situated at a distance from the pylorus; in no instance did the anastomotic opening show any sign of contracture.

COMPLICATIONS AND THEIR CAUSES.

Stricture of a gastro-jejunostomy opening is the outcome of marginal ulceration due to the use of unabsorbable suture material. In the five cases of this nature that have been under my care silk or thread had been used for the inner layer of sutures in each patient.

The present technique has almost entirely abolished immediate complications. Regurgitant vomiting is now a rare incident, and is very unusual when no abnormality is noticed at operation.

The type of regurgitant vomiting which, starting at once, continued until further operation brought relief or death occurred, should have disappeared. It is due to error in technique. Vomiting within the first 48 hours is now unusual, and if troublesome usually yields readily to lavage. If occurring about the ninth or tenth day it is of more significance, and indicates that some mechanical change in the region of the anastomosis is taking place during healing. It is, however, infrequent, and in most instances ceases at once on lavage.

Among 769 patients (477 duodenal, 292 gastric) treated by gastro-jejunostomy for simple ulcer up to the end of 1919, I have had to re-operate for this cause in 7—2 duodenal and 5 gastric. The larger number in the smaller gastric group is due to the fact that the exact site of the anastomosis is here governed by the ulcer, and hence may not be so perfect mechanically as in the duodenals in whom it can be selected.

It will be seen in the following notes of cases that in all except one some unusual feature was noted, and in all some definite mechanical cause was found at the second operation.

The first instance among the duodenals arose in October, 1914, in a male of 51. I noted "the transverse mesocolon was contracted and the jejunum closely adherent to its under surface." I had to free both before doing the anastomosis. The immediate post-operative course was uneventful; no vomiting until the evening of the tenth day. Typical regurgitant vomiting started and was not influenced by lavage. I re-operated on the thirteenth day. I found that the transverse colon had again become adherent, constricting the anastomosis, and did a lateral anastomosis with great difficulty, but he died a few hours later.

Since this date I have operated on eight patients with a similar condition of mesocolon, and in each instance, whether of partial gastrectony or gastro-jejunostomy, have brought the jejunum in front of the transverse colon.

The next is the most unsatisfactory result I have had among my patients with chronic duodenal ulcer.

In January, 1918, I operated on a man, aged 40, who had had symptoms of ulcer for 20 years. I found very extensive ulceration on both surfaces of the first part of the duodenum with a dilated stomach. The mesocolon was very vascular and I noted that there was considerable difficulty in finding room for the anastomosis, and that there was oozing from the cut edge. For the first nine days there was no vomiting and convalescence was normal. On the tenth day there was one large bilious vomit, then no more for three days, then typical regurgitant vomiting set in unchecked by lavage. I re-operated four days later and found the anastomosis was constricted at its centre by a band which passed from the mesocolon to the mesentery of the jejunum. I considered it probably due to organisation of blood clot. I divided the constriction transversely and sutured it vertically and he was able to leave the home within three weeks. He has since had to be operated on twice for jejunal ulcer.

The following cases occurred among the chronic gastrics. The first was one of my early patients and I did not appreciate anything abnormal at either operation.

Male, aged 36. Operation Nov. 7th, 1905, for chronic ulcer at the centre of the lesser curvature. Vomiting started the day following and continued, although relieved somewhat by lavage until his second operation in February, 1906. He is now, and has remained, perfectly well.

In the remainder the cause was obvious.

Male, aged 40. Operation Feb. 23rd, 1912, for chronic ulcer on lesser curvature and posterior surface near pylorus. I noted troublesome oozing from the cut edge of the transverse mesocolon. Regurgitant vomiting started on the evening of the tenth day and continued unrelieved until March 3rd, when I reoperated. There was much thickening around the anastomosis and its limbs were drawn together. My notes say: "Is this due to the oozing?" Before doing a lateral anastomosis I made an incision into the stomach to exclude the possibility of gastro-jejunal ulceration; the line of anastomosis was perfect and the gastric ulcer healed. He died of another cause five years later, having remained perfectly well.

Woman, aged 50. Operation for hour-glass stomach, Feb. 25th, 1913. Posterior gastro-jejunostomy done to the largest cardiac pouch I had ever seen. She remained perfectly well until the ninth day when typical vomiting started. I reoperated March 3rd. The anastomosis had disappeared from view pulling the meso-colon up with it owing to the contraction of the hitherto dilated pouch. Lateral anastomosis stopped the vomiting at once and she has remained perfectly well.

Woman, aged 38. Operation Nov. 12th, 1915. Anterior no-loop gastro-jejunostomy for posterior ulcer. Vomiting started on the tenth day. As it was not kept under entirely by lavage I reoperated a month later, and noted that the jejunum was constricted where it passed through the great omentum. She has remained perfectly well.

Male, aged 55. Posterior ulcer excised Jan. 18th, 1916, and to the opening left the anastomosis was done. It did not lie well and appeared to be kinked. Vomiting started on the eighth day. Lateral anastomosis was done on Feb. 1st, and he remains perfectly well.

GASTRO-JEJUNAL, OR ANASTOMOSIS ULCERATION.

Before dealing specifically with the results of the operative treatment of gastric and duodenal ulcers, there is one further complication that needs special notice—secondary ulceration. First described by Braun in 1899,[10] one of the most important contributions to our knowledge was made by Paterson[11] ten years later. In addition to reviewing the recorded cases, he suggested the classification into jejunal and gastro-jejunal ulcers. This classification should always be adhered to in reporting cases. The term "jejunal ulcer" is still used loosely to include both varieties. I consider this separation is essential to the understanding of the subject and to the elucidation of the causation of this troublesome condition.

Unabsorbable Suture as a Cause.

That gastro-jejunal, or anastomosis ulceration, as I prefer to term it, is due to the presence of an unabsorbable suture is now generally recognised. The first case of this nature appears to have been operated upon by Berg in 1898, but was not recorded until nine years later.[12] Carman and Balfour[13] in a study of 13 cases of secondary ulceration at the Mayo Clinic found 6 in which unabsorbable suture material was present. The experimental work of Soresi[14] shows that unabsorbable sutures may cause gastro-jejunal ulceration when used for the inner layer. Even when catgut is used for this layer the outer thread or silk stitch may ulcerate through. This was the cause of all the anastomosis ulcers in my own cases; I have never used anything but catgut for the inner layer. The fact does not yet appear to be generally recognised, for unabsorbable material is still being used for the outer layer by many surgeons.

It is impossible to estimate the frequency with which these ulcers occur, as it must vary with individual technique and in the anastomosis variety it is possible for the offending stitch to be evacuated naturally. Secondary ulceration is a rare complication, but each case impresses itself on the mind of the surgeon as a failure, although further operation may convert it into a success.

I have a personal operative experience of 31 cases. In 23 the original operation was done by myself; 27 followed gastro-jejunostomy for duodenal ulcer. This is very striking, and has been noticed by all who have written on the subject; it is, I believe, an important point which will help in solving the causation. Two only of the patients were women. This proportion is very much less than that in which ulcer affects the two sexes. For example, in 300 consecutive cases of duodenal ulcer operated upon 50 were women, and among 300 cases of gastric ulcer similarly treated 108 were women. Were this sex relationship to hold good with secondary ulceration, at least 8 should have been in women. In both the women operation had been carried out for chronic gastric ulcer. Both did well after removal of the offending suture. Thirteen of the ulcers were jejunal; all occurred in men and all except one after operation for duodenal ulcer.

Secondary Jejunal Ulcer.

It seems obvious that there must be some factor acting in men, and in cases of duodenal ulcer, which is not present, at any rate not to the same extent, in women and in patients with chronic gastric ulcer. This factor is, I believe, the degree of gastric acidity.

Gastric acidity is lower in women than in men and in gastric as compared with duodenal ulcer. Thus, in 50 consecutive cases of duodenal ulcer in men treated by operation the average was: free HCl 0·16 and total acidity 70; in the same number of women, 0·10 and 50. In 50 consecutive cases of chronic gastric ulcer in each sex treated by operation the average was: in men, 0·10 and 53; in women, 0·07 and 45.

Various contributory causes have been suggested from time to time. Bruising of the jejunum by clamp or the formation of a hæmatoma is undoubtedly one factor. I have noted this in 6 cases. In 3 gastric acidity was not effectually lowered by gastro-jejunostomy, and ulceration occurred in all. In the other 3 acidity was so markedly lowered that the after-history is uneventful and jejunal ulceration is not to be feared.

The following are the three cases with jejunal ulcers.

Male, aged 55. Operation for duodenal ulcer in April, 1914. Gastric acidity 0·12 and 53. I noted "a small hæmatoma formed on the jejunum just distal to the anastomosis." He made an uneventful recovery, but six months later had an attack of melæna, which recurred three times before I reoperated 14 months later. Gastric acidity was then 0·09 and 45. I found a chronic ulcer of the jejunum at the site of the hæmatoma; it had perforated and its floor was formed of transverse mesocolon. I excised the ulcer and took the opportunity of examining the suture line. The anastomosis was perfect and there was no trace of ulceration or thickening. The duodenal ulcer was healed and the jejunum, except for the ulcer, was normal. He is, and has remained, quite well.

Male, aged 39. Operation for chronic duodenal ulcer April 17th, 1912. I noted bruising distal to the anastomosis. His test-meal before operation was free HCl 0·18; total acidity, 72. He began to get pain in the lower abdomen within 18 months, and when I admitted him for investigation in June, 1914, his gastric acidity was still high—0·14 and 63. I then lost sight of him for a time, but again took him into hospital and diagnosed jejuno-colic fistula in September, 1916. His gastric acidity was then 0·09 and 35. This low acidity is the rule when jejuno-colic communication has taken place. I operated on Sept. 26th and he remains well.

The remaining patient is of interest as being the only example of jejunal ulceration I have seen following operation for chronic gastric ulcer.

C. M., a male, aged 29, came under my care in November, 1911, with a ten years' history of five attacks of pain after food and vomiting. The attacks lasted two or three months with intervals of perfect health. Test-meal, free HCl 0·11, total acidity 52. On Nov. 22nd I excised a small ulcer from the centre of the lesser curvature and did a posterior gastro-jejunostomy. I noted the formation of a jejunal hæmatoma. He left hospital for convalescent home on Dec. 5th, but returned two months later saying that the pain had recurred, but it was now to the left of the umbilicus and eased by food. Test-meal showed an increase in acidity to 0·16 and 62. I operated Feb. 14th. I opened the stomach and found the anastomosis perfect; on the anterior surface of the jejunum an inch from the opening was an ulcer which had perforated and was adherent to the mesocolon. I excised it and removed a thickened appendix. I have kept in touch with him ever since and had a letter from him from Canada last July saying he was quite well.

In none of the other cases of secondary ulcer did I notice any departure from normal at the time of operation. In 4 cases that died, post-mortem examination revealed tuberculous lesions in kidney and lungs in 3, in the other, rheumatic endocarditis. Test-meals were given in 27 patients. Both free and total acidity were raised in 12; in 10 gastric acidity was normal, but it must be remembered that a normal gastric acidity after gastro-jejunostomy is itself abnormal. Four only of these 10 were jejunal, and in 2 the ulcer communicated with the colon. Of those with lowered acidity 2 had progressed to jejuno-colic fistula, and 3 were anastomosis ulcers in which the acidity, although low, was the same as before operation.

Jejunal ulcer is found most commonly in that part of the intestine corresponding to the situation in the duodenum at which a chronic ulcer is most often met with. It suggests that the ætiology may be similar, and that it arises from failure to remove the cause of the original ulcer, or from lowering of the vitality of the intestine by bruising, in conjunction with insufficiently diminished gastric acidity. Pointing to the first suggestion is the fact that in cases recorded by Battle and others[15] and in two of mine the ulcer recurred.

Unabsorbable sutures are the cause of the gastro-jejunal or anastomosis ulcers. They may, as suggested by Garnett Wright,[16] also occasionally be responsible for the formation of a true jejunal ulcer by the irritation of a loose end.

If no unabsorbable material is used a fertile source of secondary ulceration is at once abolished. Care in the use of the jejunal clamp (personally I never use one) would also aid by removing a possible cause. If the post-operative test-meal shows a high acidity great care is necessary, and a course of medical ulcer treatment should be carried out to reduce it. This treatment should be governed by the test-meal. In every case the patient should be restrained from satisfying what is often a ravenous appetite.

I have made particular observation with regard to the structural changes that may occur in the jejunum apart from ulceration. While a dilatation of the jejunum is occasionally seen it is distinctly uncommon, and is certainly not met with in most cases of jejunal ulcer. I have notes on the condition of the jejunum in all the reoperated cases and in those in which I was able to obtain a post-mortem examination. In none were the valvulæ conniventes absent.

Paterson, in his review of the collected cases, found that in 73 per cent. symptoms began within the first two years. Among my 31 patients, in 30 symptoms began within 18 months; in only 1, an anastomosis ulcer, was the period longer, three years. While individual examples of onset at longer periods have been recorded, I think it is probable, at any rate in jejunal ulcer, that careful investigation of the history would reveal symptoms at an earlier date. The average in my cases has been, jejunal ulcer nine months, anastomosis ulcer, 12 months after operation. From the earlier records there can be no doubt that ulceration is more likely to occur after the long-loop anterior operation, for this does not so effectually reduce gastric acidity.

The prominent symptom is the onset of left-sided pain. This often has all the characteristics of that felt elsewhere before the operation; in fact, patients have said that the pain has shifted to the left, and below the umbilicus, and place their hand over the left iliac fossa in describing its position. Food relief and night waking may both be present, and the symptoms may be in attacks with periods of complete relief. I have been unable to discover any constant difference in the nature of the symptoms between the two classes of ulcer.

In all the jejunal ulcers that I have operated on the ulceration had extended through all the coats of the intestine, and the floor was formed either by the mesocolon or the colon into which perforation is common. When the floor is formed of colon, epigastric pain on defæcation may be complained of. Among 13 jejunal ulcers 5 had perforated into the colon. The prominent symptom after this accident is diarrhœa; it was present in all. It has been stated that undigested food may be found in the fæces, but this is by no means a constant feature, for in 3 cases in which this was specially looked for it was absent. In only 2 was vomiting present, and in only 1 was it fæculent. This case is of interest, as the condition was diagnosed by letter two years before operation.

In March, 1911, I operated on a male of 49 for chronic duodenal ulcer. During the first two years after operation he had attacks of pain in the lower abdomen, but not of sufficient severity to make him give up work. In November, 1914, I heard from his medical man that for a fortnight he had been having diarrhœa and vomiting, the latter at first fæcal. I replied saying the history was indicative of a jejuno-colic fistula, and that he should come in again for investigation. He got better, and I heard no more for nearly two years, when he was again seriously ill. I took him into hospital. Test-meal showed an absence of free HCl and a total acidity of 27. Bismuth meal and X ray examination did not reveal the condition. At operation I found the duodenal ulcer healed. The jejunum below the anastomosis was adherent to the transverse colon, and had perforated into it. I excised the whole anastomosis, implanted both ends of the jejunum separately into the stomach, closed the opening into the colon, and removed the appendix. In addition to the ulcer communicating with the colon there were two smaller ones immediately proximal to it. The line of anastomosis was perfect. Valvulæ conniventes were present in the jejunum, and microscopic examination revealed no abnormality other than the ulcers. He is now, and has remained, absolutely well.

Painless diarrhœa with a low gastric acidity are the symptoms of a post-operative gastro-jejuno-colic fistula. Of the five cases that have been under my care all arose in patients whom I had operated upon for chronic duodenal ulcer. One was admitted moribund 2½ years after gastro-jejunostomy. I had had him under observation for some time on account of lower abdominal pain which commenced 11 months after operation, and had seen him four months before with painless diarrhœa, and urged him to come into hospital for further treatment. At the post-mortem a jejunal ulcer was found communicating with the colon, and a smaller ulcer distal to it had perforated into the general peritoneal cavity. The duodenal ulcer had completely healed, the line of anastomosis was perfect, and the jejunum otherwise normal. The remaining cases I operated on the first died within 24 hours. The others are and have been quite well, all over three years since their second operation. Bleeding is uncommon, but in two cases of jejunal ulcer hæmatemesis and melæna were the only symptoms. Hæmorrhage also occurred in three of the anastomosis cases, but was slight and associated with pain. Vomiting is very unusual, but may be self-induced as in duodenal ulcer.

If secondary ulceration is suspected a thorough course of rest in bed and dieting should be tried, and the result checked by examination of the gastric contents. If this fails operation should be carried out on the following lines. If the ulcer is of the anastomosis type excision with removal of the offending suture; if contraction of the opening complicates it this should be re-formed. In cases of jejunal ulcer in which high acidity has persisted in spite of dealing with all disease in the abdomen the anastomosis should be excised together with the ulcer and both ends of the jejunum implanted separately into the stomach. This was done in 10 of the cases of jejunal and 5 of those of anastomosis ulcer. In the remainder the ulcer only was excised and the anastomosis re-formed or the stitch removed. Two of the jejunals developed fresh ulceration, in both excision only had been done.

One patient died in hospital of malignant disease of the thyroid eight years after I had excised a jejunal ulcer. He had remained quite well, and post-mortem examination showed the duodenal ulcer soundly healed and the scar in the jejunum hardly visible, the remainder of the jejunum being normal.

It is possible that carcinoma may follow anastomosis ulceration. I have notes of two cases which are very suggestive, although they do not definitely prove it.

In April, 1912, I operated on a man of 35 for chronic gastric ulcer. His progress was never very satisfactory, for although he was able to resume his occupation as fireman he had occasional attacks of vomiting. Four years later he came under my care again with intestinal obstruction. On admission to hospital his cæcum and transverse colon were enormously distended and I had to do a cæcostomy. I found a malignant mass in the middle of the transverse colon involving the anastomosis, but, on account of his condition, was unable to make as thorough an examination as I should have liked. I removed a small portion of the growth for sections. This showed spheroidal-celled carcinoma of the type arising in the stomach.

The other patient was operated upon by Mr. W. F. Brook at Swansea, to whose kindness I am indebted for the notes.

In December, 1913, I operated on a man of 54 with chronic duodenal ulcer. He remained perfectly well for three and a half years. On writing again last year I heard from his daughter that he had died after an operation which had been carried out for trouble with his bowels of six months' duration. Mr. Brook operated on account of subacute intestinal obstruction due to a malignant mass in the transverse colon, which involved the gastro-jejunostomy opening. Further investigation was, unfortunately, impossible.

In both patients, following a gastro-jejunostomy, a malignant mass was found in a part of the transverse colon, which is very rarely the seat of carcinoma. In both it involved the anastomosis, and it seems more than probable that it arose in the gastric mucous membrane from an anastomosis ulcer.

THE RESULTS OF OPERATIVE TREATMENT OF CHRONIC DUODENAL ULCER.

We must now pass to the consideration of the results of operative treatment of chronic duodenal ulcer. The cases under review, those to the end of December, 1917, number 389. In 2 of these the ulcer was directly involving the stomach, and in 7 a separate ulcer was present on the lesser curvature. These figures include 35 in whom the operation was carried out on account of hæmorrhage, but exclude those operated upon for acute perforation. There were 9 deaths, 3 being among the 35 operated on directly for hæmorrhage due to continuation of the bleeding, pulmonary embolism, and in the third the abdominal wall gave way 12 days after operation and the patient died of pulmonary complications after resuturing. Of the others, 2 died of broncho-pneumonia, 1 of pulmonary embolism, 1 after a second operation for regurgitant vomiting, 1 from hæmatemesis, and 1, a patient with a dilated stomach, died six days after operation and no cause could be discovered post mortem. 379 were treated by gastro-jejunostomy, with or without inversion of the ulcer, and in 2 the ulcer was excised in addition for diagnostic purposes. In one patient from whom I removed a calcified hydatid cyst of liver I excised a small ulcer of the anterior wall without doing a gastro-jejunostomy; she remains well over four years later. In 5 cases partial gastrectomy with removal of the affected part of the duodenum was carried out and in 2 a double gastro-jejunostomy. All these patients remained perfectly well.

The Healing of the Ulcer.

I have had the opportunity of examining the site of the ulcer post mortem in 8 cases—respectively 6, 9, and 18 days, 15 months, and 3 (2 cases), 8, and 9 years later. In all except the first the ulcer had healed; this was a patient of 48 with a history extending over 13 years, during the last two of which there had been vomiting of the dilated stomach type. He was extremely ill, with an enormously dilated stomach. At operation I found a mass adherent to the under surface of the liver and gall-bladder. I noted "evidently a chronic duodenal ulcer which has perforated." I did a posterior gastro-jejunostomy. He died on the sixth day without further vomiting, apparently from exhaustion. At the post-mortem no cause for death could be discovered. There was a chronic ulcer of the anterior surface of the first part of the duodenum, which had perforated and was adherent to the gall-bladder, which closed the perforation and formed the floor of the ulcer. At subsequent operation I have been able to investigate the condition of the duodenum in 21 of my patients. The ulcer had healed in all at 2, 6 (2 cases), 7, 8, 11 (2 cases) months, 1 (3 cases), 2 (2 cases), 3 (4 cases), 6 (4 cases), and 10 years after gastro-jejunostomy.

There can be no doubt that gastro-jejunostomy is a curative operation for chronic duodenal ulcer, and that symptoms which may arise later, except when the ulcer has eroded the pancreas deeply and is hence unsuitable for treatment by gastro-jejunostomy alone, result from mechanical or ulcerative complications in connexion with the anastomosis.

Condition of Patients after Two Years.

Of the 389 cases, I have been able to trace 348 up to the present time or death more than two years after operation. 318 are, and have, remained perfectly well, including all the partial gastrectomies and double gastro-jejunostomies. I have found no difference in the result in the cases in which the ulcer was treated by inversion in addition to gastro-jejunostomy. Two died of causes unconnected with the operation before the expiration of the two years, and 30 could not be traced for this time, but were well when last heard of.

Nineteen developed secondary ulceration, one of whom, already mentioned, died shortly after readmission; the remainder were treated by operation. Ten were jejunal. Of the 18 operated on, four died, one after a second operation for an anastomosis ulcer; I had been unable to remove all the stitch at the first operation. Of the survivors, one died eight years after his second operation, remaining quite well up to this time; the others are well at 9, 7, 6, 5, 4, 3 (4 cases) years later; one is improved, but not quite well; one I have lost sight of; and two have been done under two years, but are well.

No jejunal ulcer has arisen in any uncomplicated case that I have operated upon since February, 1914, and no anastomosis ulcer since I gave up the use of an unabsorbable suture for the outer layer. Most of my cases occurred in patients operated upon in 1911, 1912, and 1913. Since that date I have made the anastomosis nearer the cardiac end of the stomach, and so obtained a greater reduction in gastric acidity.

Only one jejunal ulcer has, as far as I am aware, developed among the cases operated upon during the last five years. This was in the patient mentioned under regurgitant vomiting, whom I surgically treated in January, 1918, and has since had to be operated upon on two occasions for jejunal ulcer.

Among the cases not quite well is one, the last patient in whom I used a thread stitch, who may possibly have an anastomosis ulcer. The complaints of the remainder are few, and with the exception of the one just mentioned express themselves as better because of the operation, although not absolutely well. Three of these have become quite well after a few months' discomfort, the two I have previously mentioned and the following, which is a good illustration and very suggestive of the escape of the offending suture.

I operated on J. P., a male, aged 46, on March 11th, 1913, using catgut for the inner and thread for the outer layer of sutures. He gave a typical history extending over 16 years. His test-meal showed free HCl 0·27 and acidity 100. Four months after operation he began to complain of lower abdominal pain and five months later I had him under observation and found his gastric acidity reduced to 0·07 and 33. He had attacks of pain for nearly two years, in the last of which he had melæna. He has now been absolutely well for over four years. Before his operation his longest period of relief was three months.

THE POSSIBLE DEVELOPMENT OF CARCINOMA IN A SIMPLE ULCER.

The question of the possible development of carcinoma in a simple ulcer must now be briefly considered. Malignant disease of the first part of the duodenum is unusual. Jefferson,[17] in publishing a case of his own, was able to collect 30 in which there was a possibility that the condition arose in a pre-existing simple ulcer. He states "several of these are very doubtful." I agree with him.

I have operated on 9 cases of carcinoma of the duodenum. In 2 it was situated in the third part close to the duodeno-jejunal flexure, in 6 in the second part, and in 1 only was it supra-ampullary and occupying the usual situation of a simple ulcer.

On April 8th, 1913, I operated on a male, aged 40, who was sent to me on account of gastric dilatation. He had suffered from indigestion "all his life." For five weeks before I saw him vomiting of the dilated stomach type had been present. He was very wasted, with a large stomach. Test-meal showed absence of free HCl and a total acidity of 24. I found a hard constricting mass in the first part of the duodenum with scattered whitish nodules. I removed one for sections and did a posterior gastro-jejunostomy. Microscopic examination revealed columnar-celled carcinoma, and he died in December, 1914, with painless jaundice after over a year's perfect comfort.

I know of no patient developing malignant disease of the duodenum after operation, but there is one doubtful case. In April, 1912, I operated on a male of 49 for chronic duodenal ulcer. He remained in perfect health for 6½ years and then died after 14 days' illness. Unfortunately I did not hear about it until some months later. I had a letter from his wife in which she said: "An incision was made and a growth found on the backbone, also ulcer." I have repeatedly tried to get into touch with the medical man who is supposed to have done the post mortem, but have failed to obtain any information. I have included him among the failures, but it is quite possible that the condition had nothing to do with his original disease.

I have previously[18] briefly recorded two cases in which ulcers of the duodenum were found to be involving the stomach, and at a second operation I found malignant disease of that viscus, the duodenal ulcer having healed. The following are the details of the cases.

On May 31st, 1912, I operated on a man of 54 with six years' history suggestive of duodenal ulcer followed by symptoms of dilated stomach. Operation revealed a large dilated stomach, due to an ulcer of the anterior and upper surface of the first part of the duodenum extending on to the lesser curvature of the stomach. After gastro-jejunostomy he remained perfectly well for 18 months, and then began to complain of abdominal pain and a mass developed in the epigastric region. At the second operation, 23 months after the first, I found the duodenal ulcer healed but diffuse carcinoma of the stomach.

On Sept. 3rd, 1912, I operated on a woman of 45 with a typical history of duodenal ulcer of seven years' duration. I found a markedly indurated ulcer of the anterior surface of the first part of the duodenum extending on to the stomach. She remained well for a year after gastro-jejunostomy, and then began to complain of abdominal discomfort. I operated again in May, 1914. The duodenal ulcer had healed, but the pyloric end of the stomach was much thickened, and there were enlarged coronary and subpyloric glands. I did a partial gastrectomy. On examining the specimen there was an indurated ulcer on the gastric side of the pylorus, encircling the stomach except on its anterior surface. Microscopic examination showed it to be a simple ulcer with carcinoma starting at its cardiac edge. All the lymphatic glands were infected. She lived in comfort for over a year, and died with an enlarged liver and jaundice 17 months after operation. Her medical man, who watched her throughout, in his letter describing the end, said "the most noteworthy point was the relief given by the operation."

Since these cases I have always done a partial gastrectomy when this complication is present.

THE RESULT OF THE SURGICAL TREATMENT OF CHRONIC DUODENAL ULCER.

The result of the operative treatment of chronic duodenal ulcer rivals that of any other major operation. With care during operation and with the after-treatment jejunal ulcer should become almost, if not quite, unknown. Gastro-jejunostomy is the operation of choice in all except those in which the ulcer is involving the stomach or deeply eroding the pancreas. Both should be treated by excision. Among my cases "not quite well" are three in whom this latter condition was present. The successes more than two years after operation are a little over 80 per cent. of those operated upon. This is considering all who cannot be traced or who died before the two-year period of other causes, 32, as failures. These figures agree very closely with those obtained in a similar way by Sir Berkeley Moynihan,[19] 82·78 per cent. out of 305 operated upon, when we consider that 22 of these could not be traced or died of other causes, and some were reported before the lapse of two years.

If we take the successes among those traced, and there is no reason to consider that those who have changed their addresses or died of influenza or wounds would in any way alter them, it is over 90 per cent. I believe that the treatment of chronic duodenal ulcer on the lines laid down will result in 95 per cent. cures.

THE RESULTS OF THE SURGICAL TREATMENT OF CHRONIC GASTRIC ULCER.

The results of the surgical treatment of chronic gastric ulcer cannot be dealt with as simply as those of chronic duodenal. I wrote in 1914: "The operation to be performed in any individual case of chronic gastric ulcer can only be decided after the abdomen is opened." I again want to preface my remarks in this way. I also hope to be able to show what I then stated: "Simple chronic gastric ulcers will heal as the result of gastro-jejunostomy correctly performed unless they are adherent and have perforated, their floor being formed of pancreas or liver." Owing to failure of gastro-jejunostomy to cure the type of ulcer last mentioned I have used it with diminishing frequency during the last seven years. For example, in 100 consecutive cases operated upon before December, 1912, gastro-jejunostomy alone was done in 90, combined with excision of the ulcer in 8; partial gastrectomy was done in 2 cases only. In 100 consecutive cases before December, 1919, 50 were treated by gastro-jejunostomy alone, 2 by this operation combined with excision, and 48 by partial gastrectomy. Up to this time I had carried out partial gastrectomy for simple ulcer in 101 cases with 9 deaths. It is fair to say that the ulcers operated upon during this period were much more extensive and included some that I should previously have considered inoperable.

The cases of chronic gastric ulcer operated upon up to December, 1917, number 310 with a mortality of 11. These figures include all ulcers treated by operation, except for acute perforation. The operations are as follows:—

Excision alone.. ...	9 cases. 1 death from subphrenic abscess.
Partial gastrectomy	52 cases. 4 deaths. Acute dilatation of stomach, pulmonary embolism, pneumonia, no cause found post-mortem.
Gastro-jejunostomy and excision ...	25 cases. 1 death from urethral stricture and pyelitis a month later.
Gastro-jejunostomy alone	224 cases. 5 deaths. 3 from pulmonary complications, 1 from leakage 10 days after operation for hæmatemesis, and 1 from hæmatemesis.

Results of Cases of Excision and of Partial Gastrectomy.

All the partial gastrectomies except two are quite well, and none complain of any discomfort from the smallness of the stomach. They eat ordinary food in the usual quantity. One patient after three years says: "Intimate friends regard me somewhat as an astonishing freak. The fact remains that I can manage and mix diets as few of them dare to do." One of the patients operated on nearly seven years has been able to take ordinary diet ever since, and in spite of being over 60 was able to rough it on the continent during the war. The immediate post-operative recovery of these patients is astonishing, and the sisters of my wards say they get even less discomfort than that experienced as a rule after gastro-jejunostomy. Of the two not quite well, one complains of occasional vomiting and one of occasional indigestion; neither has been of sufficient severity for me to obtain their permission for further investigation. I have not yet had the opportunity of examining any of the cases either post mortem or at second operation at remote periods, and none have developed any symptoms suggestive of secondary ulceration.

Of the 8 survivors of excision only 2 have remained well, one 7 and the other 2½ years later. In the latter the operation was carried out for hæmatemesis and nothing more was justifiable. In 5 I have had to reoperate, symptoms having recurred within 18 months. I performed gastro-jejunostomy 6, 5½, 3½ (2) years ago and all remain well. In the fifth diffuse peritoneal adhesions prevented anything but excision at the original operation; my second operation was no more successful and she is still unrelieved.

Results of Cases of Combined Gastro-jejunostomy and Excision.

I have been able to trace 22 of those treated by excision combined with gastro-jejunostomy; all except 2 are quite well. A man of 62 complains of pain in his chest on lifting, but has lost all his gastric troubles, and a woman of 53, who speaks of her ill-health; but I have been unable to obtain any definite complaint of gastric symptoms. In none of these has malignant disease subsequently developed.

Results of Cases of Gastro-jejunostomy Alone.

Of the 219 survivors of those treated by gastro-jejunostomy alone I have been able to keep 187 under observation for over two years; 162 have remained perfectly well. I have found no difference in the result in those in whom the ulcer was "inverted." In no case was pyloric exclusion practised; 24 died from causes unconnected with the operation at over 11 (2), 9 (2), 7 (2), 6 (3), 5 (2), 4 (3), 3 (4), 2 (5), and 1 year later after remaining perfectly well. In 1907[20] I recorded what I believe to be the first instance in which the healing of a chronic gastric ulcer as the result of gastro-jejunostomy was verified by post-mortem examination. Since that date I have been able to obtain post-mortem examinations in 8 from 2 to 9 years after operation, and found the ulcer soundly healed and the anastomosis perfect, without any trace of thickening or contraction. In addition I have had the opportunity of examining the site of the ulcer at subsequent operation in 13 patients, 2, 3, and 4 weeks, 3 and 18 months, 2 (3), 3 (2), 6 (3), and 7 years later: the ulcer had healed in all.

Twenty-five have had further symptoms. Nine of these were patients in whom the ulcer had perforated and was adherent to pancreas or liver, cases I now invariably treat by partial gastrectomy. One of this group died 18 months later of hæmatemesis. As the result of subsequent excision of the ulcer 5 have been in perfect health for over three years. In 4 symptoms were due to secondary ulceration, but in only 1 was it jejunal. All were treated by operation. One died as the result; post-mortem examination revealed tuberculosis of the right kidney and bladder; the gastric ulcer had healed and the operation area was perfect. One died of influenza after 3½ years of perfect health and the remaining 2 are well seven and four years later.

Occasional vomiting is a more common complication than after gastro-jejunostomy for duodenal ulcer. This is due to the position of the opening depending on the position of the ulcer; the anastomosis may have to be much farther to the left than ideal. In two it was so persistent that further operation was carried out two and three years later.

Three died of carcinoma of the stomach seven, five, and four years after operation. The following are brief notes:—

In June, 1910, after a gastric history extending over 30 years, I operated on a male of 53. I found a large chronic ulcer on the lesser curvature close to the pylorus, and did a posterior gastro-jejunostomy. I heard each year until 1917 that he was quite well. On writing in March I heard that he had just died of hæmatemesis with an epigastric tumour.

In March, 1911, I operated on a male of 58. My notes say: "I found a chronic ulcer at the cardiac end of the lesser curvature involving the posterior surface and adherent to the pancreas. I should have liked to excise it, as I was not certain of its innocence, but his condition would not permit." I heard from him as "quite well" in March, 1912, May, 1913, and July, 1914. In March, 1915, he came to see me, saying that he had been having abdominal pain for four months. I found an obvious malignant mass in the upper abdomen, and he died a few weeks later.

I operated upon a man of 57 in September, 1912, for a chronic ulcer in the middle of the lesser curvature. I heard from him in June, 1914, as quite well, but then lost sight of him, but he came to see me in January, 1917, saying he had been well until two or three months previously, when he began to get abdominal discomfort. I found a small epigastric tumour and a mass of hard glands in the left supra-clavicular region. He died two months later.

Although post-mortem evidence is unfortunately lacking, I have no doubt that these are instances of carcinoma of stomach, but whether arising at the seat of the ulcer it is, of course, impossible to say. All the ulcers were of the type I now treat by partial gastrectomy.

The following is of interest, for if the original operation had been for gastric instead of duodenal ulcer and perforation had not occurred the same difficulty would have arisen.

In September, 1906, I operated on a man of 32 for profuse hæmorrhage from a chronic duodenal ulcer. He remained perfectly well until January, 1910, when after a fortnight of vague epigastric pain he was suddenly seized with the typical symptoms of perforation. I operated on the diagnosis of perforated jejunal ulcer. The anastomosis was perfect and the duodenal ulcer healed, but he had a small carcinoma of the anterior wall of the stomach which had perforated.

Among 135 ulcers removed up to the end of December, 1919, on the diagnosis of simple, the ulcer to the naked eye showing none of the signs of malignancy, in 6 carcinoma starting in the edge of a simple ulcer was discovered on microscopic examination. On the other hand, 14 out of 57 operated upon for carcinoma, partial gastrectomy being performed, there was definite microscopic evidence that the malignant disease started in the edge of a simple chronic ulcer. These facts have an important bearing on operation for chronic gastric ulcer, and should influence us in our choice of partial gastrectomy.

Hour-glass stomach presents many features of clinical interest, but does not call for any departure from the rules laid down for the treatment of ulcer without this complication.

Up to the end of January, 1920, I had operated upon 80 cases with 4 deaths. The procedures adopted were:—

Partial gastrectomy	49 cases, 3 deaths.
Single gastro-jejunostomy ...	26 cases, 1 death.
Double gastro-jejunostomy ...	5 cases.

All those operated upon over two years are well with one exception, and in this patient the complaint is of occasional discomfort only.

I do not think it can be doubted that the majority of the cases of chronic gastric ulcer will heal as the result of gastro-jejunostomy alone. Partial gastrectomy, however, has much in its favour. It is the only efficient treatment for all chronic perforated ulcers, and as it is impossible to decide if an indurated ulcer is malignant or if its scar will many years later take on malignant change it should become the treatment for all except small free ulcers.

At the end of 1911 I began to carry out partial gastrectomy by what I believed to be the original method, closing the cut end of the duodenum and uniting the jejunum directly to the divided cardiac end of the stomach. I introduced this to the Mayo Clinic early in 1914,[21] who have since popularised it, and it has become known as the Polya-Mayo operation.[22] I have found it a most satisfactory procedure, and although the death-rate is at present higher than that of gastro-enterostomy I believe that it will be reduced to 5 per cent.

SUMMARY OF GASTRIC ULCER CASES.

To summarise the results. Of the 310 cases, 220 have remained perfectly well for more than two years or died at a later date of other causes after having had no further gastric trouble. This is 75 per cent. of those operated upon. Of those traced it is over 80 per cent., and the remarks I made with regard to duodenal ulcer apply here. These figures are not as good as those of chronic duodenal ulcer operated upon during the same period, but it must be remembered that they include cases treated by excision alone, which failed to relieve in 6 out of 8, and also posterior adherent ulcer, which I now treat by partial gastrectomy and which were either relieved only or needed a second operation to bring to a successful issue and are not included among the "cures."

CONCLUSION.

In conclusion, I should like to recapitulate the points I have tried to bring out. While gastro-jejunostomy combined with general abdominal exploration and dealing with other diseased organs is curative in the majority of cases of chronic duodenal ulcer, each must be studied, and those eroding the pancreas or spreading to the stomach removed. Gastric ulcers which have perforated and are adherent to neighbouring organs, indurated ulcers on the lesser curvature, and all in which there is any suspicion of malignancy must be treated by partial gastrectomy. I believe that gastro-jejunostomy for chronic gastric ulcer will become the less frequent operation. Symptoms arising later if the correct operative procedure has been adopted are due to mechanical or ulcerative changes in the region of the anastomosis, both prevented by careful technique, in the majority of cases, and becoming less frequent as individual experience ripens.

I wish to thank all those colleagues in the medical profession, too numerous to mention individually, who have readily assisted in my inquiries, and have so helped to trace the result in patients who would otherwise have been lost.

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THE SIGNIFICANCE OF ARNETH'S REACTION,

WITH PARTICULAR REFERENCE TO PULMONARY TUBERCULOSIS.

BY H. A. TREADGOLD, M.D. LOND.,
SQUADRON LEADER, ROYAL AIR FORCE MEDICAL SERVICE; AND FORMERLY ASSISTANT SUPERINTENDENT TO THE BROMPTON CHEST HOSPITAL LABORATORIES.

(*From the Laboratories, Brompton Hospital.*)

ARNETH,[1] in 1904, first drew attention to the fact that the number of the lobes of nuclei in neutrophile leucocytes, although constant in health, was altered considerably in certain infectious diseases. He divided neutrophile leucocytes into five classes, according to the number of nuclei they contained, and further divided these five classes into three, four, or more sub-classes dependent on the shape of the nuclei. He attached most importance to changes occurring in Classes I. and II.—i.e., in those leucocytes containing one or two subdivisions of the nucleus, and his index was the sum of these two found in counting 100 such cells. The usual change observed was a well-marked increase of Classes I. and II. in infectious disease, which he called a shift to the left. In pulmonary tuberculosis he claimed that: (1) the shift to the left was in proportion to the extent of the disease; (2) as the patient improved, so the index moved more nearly to the normal; (3) unless the index was normal, no case could be regarded as really cured. Many papers have since been written on the subject, and almost all of these are collected by A. von Bonsdorff,[2] who refers to 160 papers in his bibliography. In a lengthy treatise he agrees in the main with Arneth's conclusions. In addition to the shift to the left, a shift to the right has been less frequently described. Schilling (Torgau)[3] describes this as occurring in some infectious diseases, including "pure tuberculosis"; a shift to the left being found in general sepsis and mixed tuberculous infections, and to the extreme left in the final stages of leukæmias and septicæmias. No change in the index occurred in new growth, pernicious anæmia, and chlorosis. More recently Knapp[4] has found a shift to the right, occurring rather indefinitely in some cases to syphilis, dysentery, and ankylostomiasis. In leprosy 12 cases out of 15 examined showed a definite right shift and 3 a left shift. This shift to the right has been ignored by the great majority of writers on the subject, possibly on account of its infrequent occurrence. Various papers written from time to time on Arneth's reaction in pulmonary tuberculosis make no mention of the right shift, an omission possibly due to the small numbers of blood films examined in most cases. It is not proposed to include in the present paper a complete résumé of previous work on the subject, as this has already been done by Von Bonsdorf. Papers published since his review include those by Rayevski[5] and Kramer,[6] both of whom agree that a left shift denotes a grave prognosis in pulmonary tuberculosis, and Cooke,[7] who claims the test as one of great value in the same disease in prognosis, diagnosis, and as a guide to treatment. Chamberlain and Vedder,[8] Breinl and Priestley,[9] and Macfie[10] all describe a left shift among healthy whites in tropical climates, the latter regarding it as due to abortive inoculation with malarial parasites by infected mosquitoes.

The present paper was commenced in 1913, and was approaching completion at the outbreak of the war. It has been found impracticable to proceed any farther with it owing to the lapse of time that has occurred, and it is not nearly as complete in consequence as was intended originally.

Determination of Normal Count.

Arneth himself expressed the reaction as the sum of Classes I. and II. in 100 cells; others have added half the number of Class III. to these figures. The most convenient way of expressing it is that of v. Bonsdorff, who adds all the lobes of the nuclei of the five classes together. Thus, Arneth's original normal count, which was

5 (Class I.) ... 35 (II.) ... 41 (III.) ... 17 (IV.) ... 2 (V.)

can be expressed as 40, 60·5, or 276—i.e.,

$$(5 \times 1) + (35 \times 2) + (41 \times 3) + (17 \times 4) + (2 \times 5).$$

v. Bonsdorff's normals are farther to the left than this, and further, he gives different normals for men and women, e.g.:—

Class.	I.	II.	III.	IV.	V.	
Men ...	... 8	... 38·4	... 40·2	... 12·4	... 1·0	= 260
Women	... 12·5	... 44·85	... 33·55	... 8·35	... 0·75	= 240

The extreme limits of the normal count he places between 220 and 290, and in pulmonary tuberculosis between 285 and 125. It is inevitable that different observers should disagree to a certain extent as to what constitutes a normal count, as nuclei joined together by a bridge count as one, and if only separated by a thread, as two. In the present inquiry, after counting over 50 blood films, it was found that the normals became constant within 5 per cent., and that the same film could be placed in a separate series from time to time, and the result found to be always within this margin, such normals more closely coinciding with v. Bonsdorff than Arneth. A definite difference was found between men and women, though not as great as v. Bonsdorff describes. Control figures were as follows:—

I.	II.	III.	IV.	V.		I.	II.	III.	IV.	V.	—
Women.						*Men.*					
11	34	48	7	0	= 251	9	38	42	10	1	= 256
12	49	36	2	1	= 231	9	36	47	8	0	= 254
13	46	34	7	0	= 235	9	47	49	5	0	= 240
13	41	38	7	1	= 242	8	39	40	12	1	= 259
13	42	37	7	1	= 241	12	38	36	13	1	= 254
Average.						*Average.*					
12·4	42·4	38·6	6·0	0·6	240	9·4	39·6	40·8	9·6	0·6	252·6
Author's blood taken at 14 days' periods.											
12	39	38	10	1	= 249	12	42	38	7	1	= 243
11	43	36	9	1	= 256	11	44	35	9	1	= 247

Normal limits were arbitrarily fixed as 210 to 270 for women and 220 to 280 for men.

Technique Employed.

The technique employed was as follows:—Four cover-glass films were prepared from each case. Leishman's stain being used. The best of these was then taken and a hundred neutrophile leucocytes counted. The films were numbered by an independent observer, who kept the key till counts were complete.

Preliminary Observations in Various Pathogenic Conditions.

A series of blood films were counted in various pathogenic conditions. Results were as shown in Table A.

These results, agreeing as they do with those of previous workers, reveal a definite shift to the left, its amount appearing to depend upon the severity or extent of the infectious process.

TABLE A.

—	Disease.	Arneth.					
		I.	II.	III.	IV.	V.	—
1	Acute pyæmia	68	30	2	0	0	= 134
2	Uræmia with hypostatic pneumonia	60	33	7	0	0	= 147
3	Severe and extensive septic burn involving left arm and neck ...	58	33	9	0	0	= 151
4	Appendix abscess recently opened. Some peritonitis	56	35	9	0	0	= 153
5	Acute streptococcal hip doing badly. Marked septic temperature	54	36	10	0	0	= 156
6	Inoperable advanced malignant gall-bladder	47	42	10	1	0	= 165
7	Pericarditis with effusion and marked "back pressure" symptoms	39	48	13	0	0	= 174
8	Chronic uræmia	36	46	18	0	0	= 182
9	Chronic bronchiectasis; patient doing fairly well	31	43	24	2	0	= 197
10	Chronic bronchitis and emphysema	32	37	25	5	1	= 206
11	Inoperable malignant pylorus ...	26	47	23	4	0	= 205
12	Intrathoracic growth with commencing pressure symptoms ...	28	40	28	4	0	= 208
13	Chronic bronchitis and asthma ...	17	47	28	8	0	= 227
14	Pernicious anæmia (chronic) ...	12	44	32	12	0	= 244

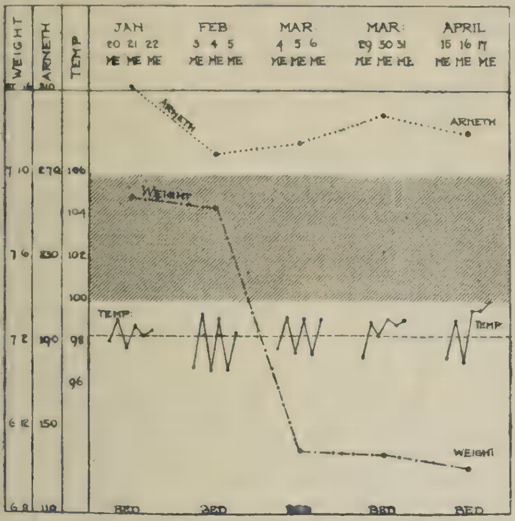
Observations on 30 Cases of Pulmonary Tuberculosis.

A series of 30 cases representative of various stages of pulmonary tuberculosis were then carefully selected; all had tubercle bacilli present in the sputum. All cases were examined on at least three occasions over a minimum period of two months. The average time each case remained under investigation was 3·8 months, and the average examinations made were 4·15 per case, a total of 124 blood films being counted. Analysis of these cases showed that 29 had a more or less marked shift to the left, and one a definite and continuous shift to the right. There were 10 deaths, 10 cases

TABLE B.—*Deaths, 9.*

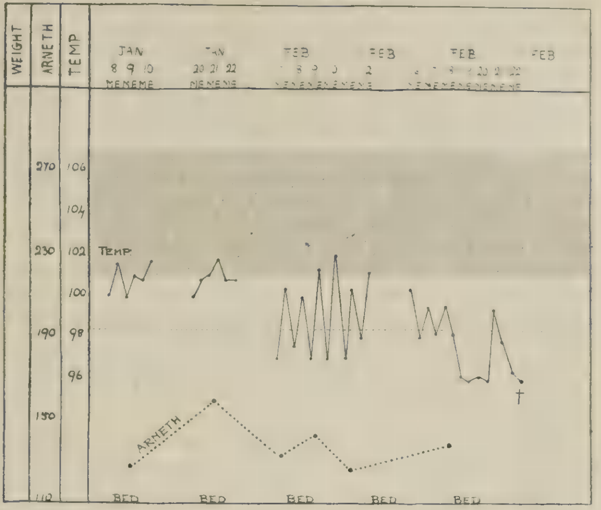
No. of case.	First count.	Intermediate count.	Final count.	Remarks.
1	164	159	162	Death 3 wks. later.
2	153	144	152	,, 2 wks.
6	128	133	139	,, 10 days.
8	163	166	165	,, 3 wks.
11	152	170	146	,, 3 wks.
19	153	145	123	,, 3 wks.
26	117	109	105	,, same day.
29	207	152	160	,, 3 days.
30	160	151	140	,, 2 wks.
Average...	155·2	147·7	143·7	
Unimproved, 10.				
3	152	157	148	Death 3 mths. later.
4	169	139	193	,, Feb., 1919.
7	158	164	136	,, 5 mths. later.
9	153	180	167	,, July, 1916.
12	214	182	192	Alive, April, 1919
16	158	157	143	Death, December, 1917.
18	206	194	204	Alive, February, 1918.
20	185	187	184	?
21	149	156	158	Death, January, 1915.
22	155	158	138	,, October, 1916.
Average...	169·9	167·4	166·3	
Improved, 10.				
5	215	181	204	Well in March, 1918.
10	187	199	178	Death, May, 1917.
13	163	167	150	,, April, 1919.
14	200	191	193	?
15	224	203	239	Death, June, 1916.
17	191	172	182	,, December, 1915.
23	160	195	215	,, August, 1916.
24	129	156	204	Alive, January, 1917.
25	165	181	207	Death, August 1919.
28	142	168	196	Alive, very ill, January, 1920.
Average...	177·6	180·3	196·8	

1



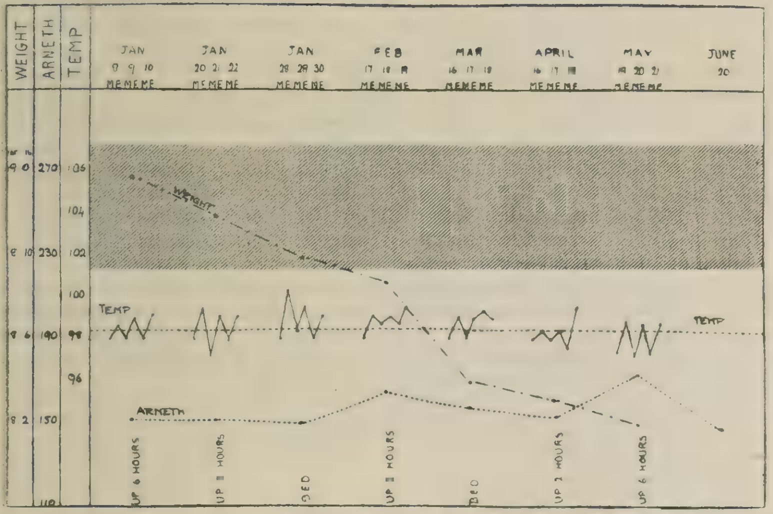
CASE 27.—Right shift.

2



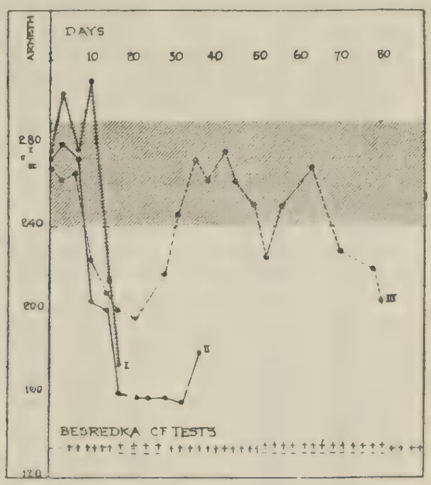
CASE 6.—Class I. type.

3



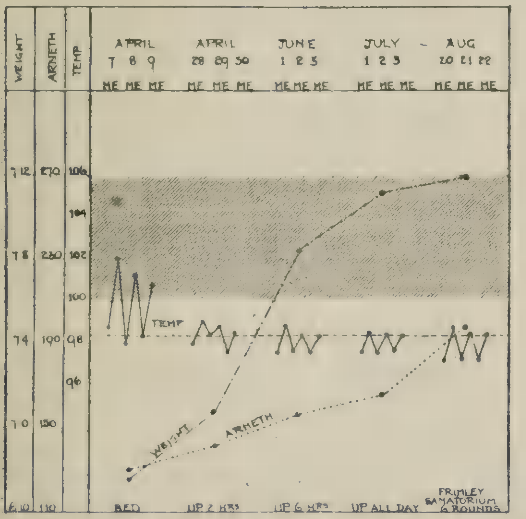
CASE 3.—Class II. type.

5



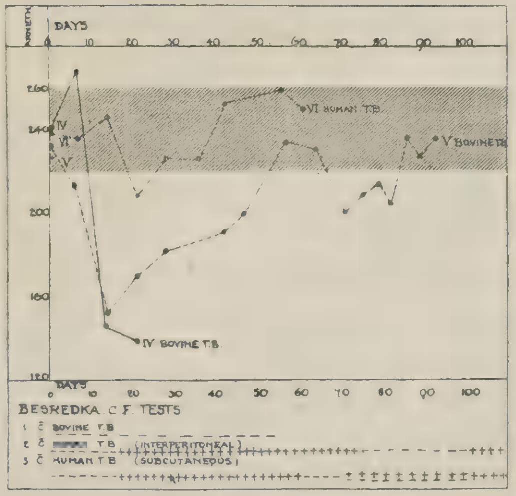
Guinea-pig experiments.

4



CASE 24.—Class III. type.

6



Rabbit experiments.

discharged unimproved after treatment, and 10 cases definitely improved. Further analysing the 29 cases with left shift by averaging the first, middle, and last count in these three classes, results were as given in Table B. (Details of nuclei in each class are omitted for reasons of space.)

These figures show that Class I. has a marked and progressive left shift, and that Class II. is fairly constant and intermediate between Classes I. and III., the latter of which is distinctly higher than the other two and shows a progressive shift towards the normal. There are no normal counts in Classes I. and II., and only one case in Class III. The greatest and least left shifts in the last blood films taken before death were 105 and 162 respectively; in Class II. the extreme figures met with were 138 and 214, and in Class III. 129 and 224.

Details of the only case showing a right shift and typical cases representative of Classes I., II., and III. are as follows:—

CASE 27. Showing right shift (Chart 1).—Female, aged 60. Chronic fibroid lung of long standing, with extensive cavitation and heart drawn over; bronchitis and emphysema; slight resting febrile; very little sputum. (Table C.)

TABLE C.

—	I.	II.	III.	IV.	V.	—	Weight.
							st. lb.
Jan. 21st	3	26	37	23	11	= 313	7 9
Feb. 4th	8	27	46	16	3	= 279	7 8½
March 5th. Losing weight steadily	8	25	45	19	3	= 284	6 11
March 30th. Still losing weight and doing badly ...	5	23	45	23	4	= 298	6 10½
April 16th	6	24	44	21	5	= 290	6 10

April 30th, sent out to home for incurables. June 1st, death.

CASE 6 (Class I. type. Chart 2).—Three lobes involved on admission, spreading to five before death. Resting febrile acute. Weight unobtainable. (Table D.)

TABLE D.

—	I.	II.	III.	IV.	V.	—
Jan. 9th. Acute enteritis...	74	24	2	0	0	= 128
Jan. 21st. Enteritis better, but losing ground	50	40	9	1	0	= 161
Feb. 7th	70	27	3	0	0	= 133
Feb. 9th	61	35	4	0	0	= 143
Feb. 11th	76	22	2	0	0	= 126
Feb. 18th	69	23	8	0	0	= 139

March 1st, death.

CASE 3. (Class II. type. Chart 3).—12 months' history. Involvement of five lobes. Ambulant, afebrile, fair appetite, and general condition good, large amount of sputum apparently largely bronchial in nature. (Table E.)

TABLE E.

—	I.	II.	III.	IV.	V.	—	Weight.
							st. lb.
Jan. 29th	57	34	9	0	0	= 152	8 13½
Jan. 21st	57	34	9	0	0	= 152	8 12
Jan. 29th. Under terpezone treatment. Has lost 2 lb. in last 14 days, and become resting febrile	59	32	9	0	0	= 150	8 10
Feb. 18th. Has become resting afebrile. (Up 2 hours.)	49	38	12	1	0	= 165	8 8½
March 17th. Still losing weight; in bed	55	33	12	0	0	= 157	8 4
April 17th. Still losing weight; slowly up, 2 hours. Still good appetite, but pulse remains steadily above 100	56	35	8	1	0	= 154	8 3½
May 20th. Still losing weight	45	36	19	0	0	= 174	8 2
June 12th. To be discharged unimproved. Slight ambulant febrile ...	58	36	6	0	0	= 148	—

CASE 24 (Class III. type, Chart 4).—Early involvement of both upper apices; three months' history. Marked resting febrile slowly coming down on absolute rest. Bad appetite. (Table F.)

TABLE F.

—	I.	II	III.	IV.	V.	—	Weight.
							st. lb.
April 8th	73	25	2	0	0	= 129	6 11¾
April 30th. Improved appetite; better; up 2 hours...	65	30	5	0	0	= 140	7 0¾
June 2nd. Already improved; ambulant afebrile. Up 6 hours. ...	51	42	7	0	0	= 156	7 8¼
July 2nd. Has gained 13½ lb. since admission. Up all day	46	44	10	0	0	= 164	7 11¼
August 21st. Discharged to Frimley July 21st. Now on 6 rounds; doing well ...	27	44	27	2	0	= 204	7 12

Although a study of these figures bears out, to some extent, claims made by other observers that the more marked the left shift the worse the prognosis, it also reveals the great danger of drawing any conclusions from single Arneth examinations. Case 24 is a striking illustration of this. Again, two consecutive examinations showing a marked rise in the Arneth count are not necessarily indicative of the improvement in the lung condition of the patient (vide Case 6). The reason of the right shift in Case 27 was altogether obscure at this stage.

In view of the fact that the average tuberculous sputum usually contains considerable numbers of well-preserved neutrophile leucocytes, films of tuberculous sputa were stained by Unna's polychrome-blue method, and the results contrasted with blood films of the same patients taken the preceding day. The first ten cases examined proved remarkably constant, the maximum variation in the count between the sputum and blood films being in no case more than 5 per cent. Further investigation showed, however, that the leucocytes of many perfectly fresh tuberculous sputa were disintegrated and impossible to count and the method was abandoned.

TABLE G.—*Old Cases of "Clinical Arrest."*

No. of case.	Year discharged.	—	I.	II.	III.	IV.	V.	—
1	1910	Quite well until one year ago, when cough and slight hæmoptysis occurred. Has since lost 12 lb. in weight, but is on full work as packing-case maker	45	35	18	2	0	=177
2	1911	"Perfectly well." No recent loss of weight on full work	14	52	31	3	0	=223
3	1912	"Feels quite well." On full work as night porter	18	43	35	4	0	=225
4	,,	"Perfectly well." On full work as policeman	14	52	30	4	0	=224
5	1913	"Perfectly fit." No loss of weight...	25	43	28	4	0	=211
6	,,	"Perfectly fit." No loss of weight. Tram-driver ...	12	43	39	6	0	=239
7	,,	Has lost 6 lb. in last 6 months, but feels well ...	45	36	18	1	0	=175
8	,,	"Perfectly fit." At full work.	15	52	28	5	0	=223
9	1914	Discharged from Frimley under two months. Is running evening temp. to 100°, had slight hæmoptysis week previous to examination	30	55	13	2	0	=187
10	,,	"Perfectly fit." No loss of weight; at full work	12	37	40	10	1	=251

Regarding Cases 1, 7, and 9 as probable relapses and the remainder "clinically arrested," the average Arneths of the two classes are 179·6 and 228 respectively.

Observations on Old Cases of "Clinical Arrest."

An attempt was next made to study Arneth counts in cases previously discharged from Frimley Sanatorium as "clinically arrested." Considerable difficulty was experienced in following these up and only ten could be obtained. Particulars are as given in Table G.

Conclusions.

(I.) That a shift to the left is usually present in cases of active pulmonary tuberculosis, the degree of shift being most marked, and generally progressive, in dying cases. It is less marked and is apt to remain fairly constant in cases which do not improve under treatment, while cases definitely improving usually show the least degree of shift, and this becomes progressively less as improvement continues.

(II.) While this is true as a general rule, there are exceptions which do not conform, notably Case 27 (right shift) and Cases 24, 4, 12, 13, 29.

(III.) It is inadvisable and dangerous to draw any conclusions from single Arneth examinations. At least three extending over a period of some weeks should be made. Evidence obtained in this way may often prove of help as a key to the progress of the patient.

(IV.) A constant and marked left shift in early suspected cases of pulmonary tuberculosis, where other sources of infection can be excluded, is presumptive evidence of active mischief.

(V.) A left shift under 200 in old cases of "clinical arrest" is suggestive of recurrence and calls for minute and careful re-examination.

Animal Experiments.

A series of experiments were next undertaken on rabbits and guinea-pigs, infected with living tubercle bacilli, and blood films made at regular intervals in order to follow out the disease from beginning to finish.

(A) *Experiments on Guinea-pigs.*

Controls showed that healthy guinea-pigs had a constant Arneth count in the region of 267. Limits of normal were fixed between 240–290. Figures were as follows:—

Controls—Guinea-pig.	I.	II.	III.	IV.	V.	—
I.	16	25	41	14	4	=265
II.	14	47	41	14	4	=267
III.	10	32	43	11	4	=267
IV.	10	28	41	17	4	=277
V.	12	32	42	11	3	=259
Average ...	12·4	28·8	41·6	13·4	3·8	=267

EXPERIMENT I.—*Guinea-pig No. 1.*

—	I.	II.	III.	IV.	V.	—	Weight in grammes.
May 26th. 5 c.cm. emulsion of T.B. sputum injected intraperitoneally	10	28	41	17	4	= 277	450
May 29th	5	26	36	24	9	= 306	410
June 2nd	13	25	40	16	6	= 277	450
June 5th. Marked leucocytosis	3	24	38	28	7	= 312	450
June 9th	24	45	25	5	1	= 214	410
June 12th. 12 A.M. ½ m.g. old tuberculin injected subcutaneously right thigh	39	48	13	0	0	= 174	390
6 P.M.	36	51	13	0	0		

8 P.M., Death.

Marked anaphylactic shock immediately after injection, but temporary recovery after two minutes; almost moribund 6 P.M. (O.T. was injected in order to determine its effect, if any, on the Arneth count, but death supervened too soon for further blood examinations to be made.)

Post-mortem.—Miliary tuberculosis of liver and spleen which were both much enlarged, especially the latter. Lungs congested but all other organs apparently normal. Lungs on section showed extreme engorgement and marked enlargement of cells of bronchial mucous membrane, many of which were desquamated so as almost to block all the bronchial lumina.

EXPERIMENT II.—*Guinea-pig No. 2.*

—	I.	II.	III.	IV.	V.	—	Weight in grammes.
May 20th	8	33	41	15	3	= 272	520
May 26th. Intraperitoneal injection of 1 c.cm. of the same sputum used in Experiment I.	8	33	42	13	4	= 272	550
May 29th	8	32	37	20	3	= 278	500
June 2nd	11	31	36	19	3	= 272	540
June 5th. Marked leucocytosis	26	45	26	3	0	= 206	550
June 9th	30	40	47	3	0	= 203	520
June 12th	53	35	12	0	0	= 159	450
June 16th. Poikilocytosis very marked	57	29	13	1	0	= 158	440
June 19th	49	44	7	0	0	= 158	420
June 23rd	50	41	9	0	0	= 159	420
June 26th	54	35	11	0	0	= 157	400
June 30th	49	34	14	3	0	= 181	370

Death the same day.

EXPERIMENT III.—*Guinea-pig No. 3.*

May 26th: Injected emulsion of T.B. sputum subcutaneously under skin of right thigh.

—	I.	II.	III.	IV.	V.	—	Weight in grammes.
May 26th	10	32	43	11	4	= 267	520
May 29th	11	32	43	12	2	= 262	500
June 2nd	13	26	44	15	2	= 267	530
June 5th	23	28	31	7	1	= 225	520
June 9th	24	49	23	4	0	= 207	490
June 12th	28	48	21	3	0	= 199	500
June 16th	35	38	23	4	0	= 196	510
June 19th	26	46	23	5	0	= 207	470
June 23rd	21	44	31	4	0	= 218	470
June 26th	14	35	42	9	0	= 246	470
June 30th	11	27	43	16	3	= 273	470
July 3rd	11	32	43	12	2	= 262	490
July 7th	10	27	43	17	3	= 276	480
July 10th	9	35	43	11	2	= 262	500
July 14th	12	38	39	10	1	= 250	480
July 17th	21	40	44	5	0	= 223	450
July 21st	14	34	40	11	1	= 251	480
July 28th	10	35	36	17	2	= 268	460
August 4th ...	20	41	30	9	0	= 228	440
August 11th ...	27	40	21	11	1	= 219	430
August 14th ...	32	37	26	5	0	= 204	400

Death August 16th. Post mortem: General miliary tuberculosis of lungs, liver, and spleen.

Control.

—	I.	II.	III.	IV.	V.	—	Weight in grammes.
May 26th	12	31	42	11	3	= 259	720
June 2nd	11	40	33	15	1	= 255	700
June 9th	12	37	35	14	2	= 257	710
June 16th	14	34	39	12	1	= 252	690
June 23rd	13	36	38	11	2	= 253	670
June 30th	14	36	40	10	1	= 251	700
July 14th	12	35	39	12	2	= 257	720
August 19th ...	16	21	39	13	1	= 253	730

Killed the same day. Post mortem, all organs normal.

Chart 5 shows the progress of the Arneth counts in each case.

In Experiment I. there is a sharp fluctuating right shift up to the 10th day, followed by a very marked left shift, continuing till death on the 17th day.

In Experiment II. the right shift is hardly noticeable, and the left shift commences on the 7th day and stops on the 17th day. It remains constant till the 33rd day, when there is a definite rise before death.

In Experiment III. there is no preliminary right shift and the left shift is not so marked. This becomes less on the 21st day, and gradually gets within normal limits on the 34th day. It falls below normal between the 48th and 55th days, and again on the 70th day, and then sinks progressively till death on the 80th day.

(B) *Experiments on Rabbits.*

Normals were found to be lower than in guinea-pigs, and throughout the following experiments considerable difficulty was found in counting the leucocytes in view of the normally low percentage of neutrophile leucocytes in rabbits' blood (20 to 25 per cent.) which diminished in the later stages of the disease.

Controls.

—	I.	II.	III.	IV.	V.	—
Rabbit No. 1 :—						
Jan. 16th	15	38	38	8	1	= 242
Jan. 29th	16	37	40	6	1	= 239
Rabbit No. 2 :—						
Jan. 16th	16	40	35	8	1	= 239
Jan. 29th	15	37	40	7	1	= 242
Rabbit No. 3...	17	40	33	8	1	= 233
Rabbit No. 4...	19	34	34	11	1	= 238
Average...	16·2	38·2	35·4	9·2	1	= 239

Normal limits were fixed at 220–260.

EXPERIMENT IV.—*Rabbit No. 1.*

—	I.	II.	III.	IV.	V.	—	Weight in grammes
Jan. 16th	16	40	35	8	1	= 238	
Jan. 29th	14	39	37	9	1	= 244	1900
March 9th. Intravenous injection of 5 c.cm. emulsion of bovine T.B.	15	37	40	7	1	= 242	1960
March 16th. Leucocytes diminishing	6	38	42	12	2	= 266	1800
March 23rd. Leucocytes as before, very marked poikilocytosis. Normo- and megaloblasts present. Polychromatophilia and granular basophilia very marked	60	35	5	0	0	= 145	1840
March 30th. As before, but even more so...	66	30	4	0	0	= 138	1740

Death April 1st. Post mortem: General miliary tuberculosis of lungs, liver, spleen, and kidneys.

EXPERIMENT V.—*Rabbit No. 2.*

	I.	II.	III.	IV.	V.	—	Weight in grammes
March 9th. Intravenous injection bovine T.B. emulsion as in Experiment I....	17	40	33	8	1	= 233	3310
March 15th. Leucopenia ...	24	48	21	7	0	211	2975
March 23rd. Poekilocytosis very marked, a few normoblasts, very marked leucopenia. Only 50 counted ...	56	38	6	0	0	= 150	3110
March 30th. As before, but polychromatophilia and granular basophilia	46	42	10	0	0	= 170	2970
April 6th. Blood picture not so marked and no normoblasts seen	32	54	14	0	0	= 182	3040
April 13th. Not counted ...							3010
April 20th. Blood picture nearly normal	31	48	20	1	0	= 191	3030
April 25th	25	53	20	2	0	= 199	2900
April 29th							2980
May 4th	12	48	34	6	0	= 234	2900
May 11th	21	38	32	8	1	= 230	2810
May 18th	28	47	22	3	0	= 200	2630
May 22nd	26	50	17	8	0	= 209	2530
May 26th	21	49	25	5	0	= 214	2480
May 29th						= 203	2400
June 2nd	16	44	31	7	2	235	2320
June 5th	21	43	33	5	0	= 226	2270
June 9th. Basophiles greatly increased	19	36	37	8	0	= 234	2180
June 12th	18	47	23	10	2	= 231	2120

June 12th, killed owing to bad condition.

Post-mortem.—Lungs: Scattered small nodules in both, not very numerous. Microscopically, giant-cell systems and round-celled infiltration, with one or two early caseous areas of small extent. Bronchial glands not enlarged. Liver: Apparently normal. Microscopically normal, and no tubercle bacilli seen on section. Kidneys: Many tubercles present. Section showed tubercle bacilli present and round-celled infiltration scattered through cortex and medulla. Suprarenals: Enlarged and apparently caseous. Section showed both nearly a mass of tubercles and a considerable portion of glands caseated. Spleen: Normal. On section normal and no tubercle bacilli seen. Bladder, testes, intestines, and mesentery, normal.

EXPERIMENT VI.—*Rabbit No. 3.*

June 5th: Intraperitoneal injection of ½ mg. of human tubercle bacilli emulsion.

—	I.	II.	III.	IV.	V.	—	Weight.
June 5th	19	35	34	11	1	= 240	2380
June 12th	16	40	35	9	0	= 237	2520
June 19th	18	32	38	10	2	= 246	2410
June 26th	24	48	24	4	0	= 208	2400
July 3rd	24	34	34	8	0	= 226	2420
July 10th	20	40	35	5	0	= 225	2450
July 17th	16	30	42	10	2	= 252	2420
July 31st	13	32	42	10	3	= 258	2410
August 7th ...	14	33	42	10	1	= 251	2420

August 7th: killed.

Post-mortem.—Showed a few scattered tubercles in the liver. Spleen normal. Scattered tubercles in omentum, one in right kidney and a few in lungs. Glands not enlarged. Chart 6 shows the change in the Arneth count graphically.

In Experiment IV. the initial right shift and subsequent fall are very similar to that of guinea-pig in Experiment I.

In Experiment V. the result is again similar to that of guinea-pig in Experiment III., and it is possible that the left shift before death in the case of the guinea-pig in Experiment III. would have been repeated here, if the rabbit had not been killed owing to its bad condition.

In Experiment VI. the Arneth curve generally follows the preceding ones on a lesser scale, but only just leaves normal limits about the 20th day.

Considering the six experiments as a whole, (1) The more severe the injection, the greater tendency is there to a right shift after injection. (2) This is followed in all cases by a left shift, its degree depending again on the severity of the injection. (3) Those animals who survive at this stage have a right shift which continues until the normal is reached. It then fluctuates but tends to fall before death.

Remarks on Results.

The danger of drawing any definite conclusions from these few cases is fully realised, but prominence has been given them owing to my attention being drawn, towards the completion of these experiments, to complement-fixation tests carried out about the same time by Besredka and Jupille,[12] and Besredka and Manonkhine,[13] on rabbits and guinea-pigs, using Besredka's antigen. In rabbits, injection with bovine tubercle bacilli always produced a negative reaction throughout the disease. Intraperitoneal injection of human tubercle bacilli produced a negative reaction on the 16th day which became positive between the 17th and 60th days, strongly positive towards the 70th and negative between the 70th and 100th days and thereafter positive on to the 135th day. In subcutaneous injections the positive phase was shorter, lasting to the 62nd day. After this it was negative or indeterminate to the 100th day, and then positive up to the 135th. The close correspondence of the two series is shown in Chart 6. The particularly interesting feature is that while Besredka obtained no result in rabbits injected with bovine tubercle bacilli, the corresponding Arneth counts in Experiments 4 and 5 (injected with bovine T.B.) showed deviations closely comparable to his results with human tubercle bacilli. The Arneth counts would consequently appear to be distinctly more sensitive than the complement-fixation results as performed by the strain of bacilli in the antigen used by Besredka. Turning now to Besredka's experiments with infected guinea-pigs, he obtained a positive result as early as the 4th day after injection, which became indefinite and variable from the 17th to 29th and 50th to 80th days, and positive between 29th and 50th and 80th and 90th days. The close connexion between these figures and the Arneth counts on Chart 5 is obvious. The value of Besredka's antigen as a diagnostic agent in human pulmonary tuberculosis has been sufficiently proved both by Besredka [14] and Inman.[15]

Comparison between Animal Experiments and Human Cases.

At first sight it appears difficult to correlate these results on guinea-pigs and rabbits with those obtained in the 30 cases of pulmonary tuberculosis previously described. It must, however, be remembered that the latter represented cases in which the infection was localised to the lungs, and the duration of the disease was far longer. In addition the Arneth counts were only samples taken over a relatively short period of the whole disease. The definite evidence of a right shift occurring in the animal experiments at the earliest stages of the most acute injections, and its tendency to occur later in the disease, help to explain the right shift obtained in Case 27. Here, in view of the age of the patient and the long duration of the disease, the right shift would presumably coincide with the secondary right shift, which tends to occur in the later stages of the animal experiments.

Some explanation can also be found for the various cases which did not appear to conform to the general average.

In Case 29 the high count might be explained by supposing the existence of a previous right shift, and would then be comparable to the left shift occurring before death in the case of the guinea-pig in Experiment III. The marked drop and subsequent rise in Case 4 find a close parallel in the Arneths of the animal experiments between the 10th and 40th days. Cases 12, 13, and 24 can be similarly explained. In the absence of further evidence, however, it is impossible to arrive at any definite conclusions.

An endeavour was made in July, 1914, to obtain Arneth counts from a case of tuberculous meningitis throughout its course in order to see if this would reveal any similarity to the animal experiments, but without success, and the outbreak of the war put an end to all further work. A case of acute (non-tuberculous) meningitis was examined daily for the last four days of life, and the results are closely comparable with the final fall occurring in Experiment III.

—	I.	II.	III.	IV.	V.	—
August 4th	36	42	19	3	0	=189
,, 5th	40	40	17	3	0	=183
,, 6th	42	42	14	2	0	=176
,, 7th	49	37	10	3	1	=170

It is noteworthy that there is an absence of the marked left shift, described by other observers as occurring in acute infections.

Concluding Observations.

In view of the many omissions and incompleteness of this investigation, the idea of publication was at first abandoned when it was found impossible personally to continue the work at the conclusion of the war, but, in view of the interesting results obtained, it was finally decided to publish the results as they stood, in the hope that their publication may stimulate further investigation of the Arneth count along similar lines. This is certainly required before it can be determined whether the Arneth count is to be definitely established as a laboratory method for the diagnosis and possible prognosis in cases of pulmonary tuberculosis.

The views of Arneth and most later observers on the reason of the shift of the Arneth count in infectious disease have been summarised by Chamberlain as follows: "An increase of leucocytes of Classes I. and II. goes hand-in-hand with low resistance or with a high degree of toxic and bacterial absorption, which is bringing about the destruction of the more actively phagocytic leucocytes belonging to Classes III. and IV."

Macfie, and Breinl and Priestley, prefer to regard the Arneth picture as an expression of the functional activity of the leucopoietic system, especially the bone-marrow, rather than one of phagocytic activity. The tentative suggestion is made that the variations in the Arneth count in infection are an index to the ratio between the degree of body resistance as shown by increased production of leucocytes, and the severity and extent of the effects produced by the infecting organism, as evidenced by their destruction.

Normally production and death of leucocytes is constant and a uniform process of the body's mechanism and the Arneth count remains constant. If, however, an infective agent can destroy more leucocytes than the body is producing, a left shift would be the result. Conversely, a greater production of leucocytes than can be destroyed at the infecting focus or foci would produce a right shift and the Arneth count would tend to return to normal, and if this still continued, a right shift would result.

A parallel series of examinations of the Arneth count and the antitryptic power of the blood should prove interesting in this connexion.

In conclusion, the invaluable suggestions and help of Dr. A. C. Inman throughout the whole course of the investigation are gratefully acknowledged. Without his encouragement and advice this paper would never have been published. My thanks are also due to the visiting staff at Brompton Hospital, to the lady almoner, whose assistance in following up old cases was of the greatest value, and to the superintendent of Frimley Sanatorium (the late Dr. Meek) where several of the cases were examined in their later stages.

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THE PROBLEM OF

THE "POSITIVE THROAT" IN DIPHTHERIA CONVALESCENTS.

A CLINICAL STUDY OF 50 CONSECUTIVE VACCINE-TREATED CASES.

BY JAMES LAW BROWNLIE, M.D. GLASG.,
D.P.H. CAMB.,
ASSISTANT BACTERIOLOGIST, CORPORATION OF GLASGOW.

PROBABLY there is no more difficult and unsatisfactory problem to be dealt with in fever practice than that of the diphtheria carrier. Ker,[1] Osler,[2] McVail,[3] Osler and Macrae,[4] Bosanquet and Eyre,[5] and others bear out the truth of this contention. The very multiplicity of so-called cures is an admission of their comparative worthlessness. At various times the following amongst many others have been pressed into service as curative agents: carbolised glycerine of varying concentrations, formaldehyde, chloramine-T, flavine, urea, papayotin, lozenges, insufflations of powdered serum, toxin-antitoxin, vaccine-antitoxin, endotoxin; media containing bacilli killed in one case by exposure to chloroform, in another pulverised at the temperature of liquid air, and in a third extracted by ethylene-diamine and submitted to further tedious processes. It must be conceded that it would be difficult to furnish a better example of scientific ingenuity than the foregoing.

So much disappointment followed extended trials of many such vaunted remedies that the writer early in 1916 began the quest for some more specific and dependable application. Problems of symbiosis and saprophytism had been fascinating studies, and it appeared reasonable to assume that investigation along such lines might lead to definite findings. Much time was spent and many attempts made to discover if there might not be some constant bacterial association in the throats of carriers. Had the hope materialised the intention was to employ either a specifically made vaccine or one of the marketed antistaphylococcal or antistreptococcal vaccines against the supposed abetting organism. By the removal of this latter it was confidently anticipated that the persistent *B. diphtheriæ* would simultaneously disappear. The premise that a pyogenic organism would be inculpated appeared justifiable from the clinical observation that those cases were invariably most toxic whose local membranous lesion had marked and demonstrable pyogenic associates. Realising the apparent impossibility of success in the quest for associates, the idea of using a vaccine of the offending organism itself appealed to the writer, and was forthwith put in practice, quite independently of the knowledge of its previous tentative employment. Forty-three consecutive cases had been successfully treated when interest was sufficiently aroused in the matter to consult the literature on the subject. Nowhere did claim appear to be made either for such uniformity of results or for such a large consecutive number as the series about to be reviewed.

Effects Produced by Vaccine on Diphtheria Bacilli.

The vaccine used was made in the usual way, and was not autogenous. After a considerable number of patients had been dealt with it was realised that the diphtheria bacilli in each case did not behave uniformly in the presence of vaccine. The morphological changes observed in each instance conformed to one or other of three types:—

(1) In a number of cases a culture, characteristically positive 24 hours before vaccination, became completely negative 24 hours after vaccination. This, of course, was an ideal transformation, and apparently depended upon immediate lethal influence of the vaccine constituents on the particular bacillary invasion concerned. Of the 50 cases treated, 13 conformed to this first type.

(2) In many of the cases the transition from positive to negative was accomplished in stages. Bipolarity became barely manifest, inasmuch as the rods contained, for the most part, varying numbers of darkly staining beads or granules. One was induced to describe such a field as consisting of "beaded degenerates" or "granular bacilli," whilst the term "bacillary debris" might aptly be applied to the appearances presented after further dissolution had occurred. Negativity was thereafter obtained. Twenty-four of the cases progressed from positive to negative by stages, as above described.

(3) In the remainder metamorphosis took place in a different manner. The transition was effected through various phases or modifications of diphtheroid change. After 24 hours' association with vaccine the organisms were rod-shaped or diplo-bacillary in form, and varied much in size and shape. Subsequent swabs showed no trace of *B. diphtheriæ*.

The vaccine was clearly capable of instituting well-defined involution formation, with subsequent dissolution in the bodies of diphtheria bacilli with which it was brought into contact. Many of the involution forms were comparable with those known to be producible by alteration in optimum growing conditions.

Vaccine Administration in 50 Consecutive Cases.

The series occurred in the ordinary course of practice in an isolation hospital. There was no selection. No accessory treatments were at any time employed. It was concluded that the persistence of the *B. diphtheriæ* was due to one or other or any combination of the following four circumstances: (1) Innate lack of resistance of the hosts—mainly contributed to by the presence of a concurrent resistance-lowering condition, such as pneumonia. (2) Spread by continuity of tissue—causing infection of any of the accessory nasal or pharyngeal passages. (3) Severity of the original local involvement. (4) Individual tolerance or natural predisposition—carriers or those with bad fever histories.

Taking the somewhat arbitrary designations of mild, moderate, and severe, it was found that 16 fell into the first classification, 2 into the second, and 32 into the third. Put briefly, of the mild cases 8 had complicating diseases, 5 were carriers, and in 3 only was there no evident predetermining factor, although even they may have had an undiscoverable invasion of the antrum of Highmore or Eustachian tube. In other words, fully 81 per cent. satisfied one or other of the original premises. Of the 2 moderate cases, it may be summarised that persistence in one was conduced to by individual tolerance and the other by natural predisposition. Of the 32 severe cases, 12 had some degree of broncho-pneumonic disease, 3 had accessory passage infection, whilst 4 had a double infection of lungs and mid-ear in addition to their original severe invasions. By reason, therefore, of the coexistence of the favouring factor or factors the ground had been well prepared for diphtheritic bacillary persistence.

Since various factors may be contributory to the production and maintenance of a morbid state, careful note was taken and record kept of many circumstances which were thought likely to have ætiological bearing upon carrying. Attention was accordingly directed to questions of sex and age, the pre-existence of albuminuria, the brand of serum given, the infectious fever history of the patient, and the day of disease on which serum was administered.

The series of carriers was made up of 22 males and 28 females. Taken in conjunction with the age-incidence, such a proportion was not at variance with that obtaining in diphtheria itself. No proof, then, was forthcoming that sex, per se, exerted any particular predetermining influence.

With regard to age, it was not found that persistence of the *B. diphtheriæ* in convalescence was liable to affect disproportionately those at one time of life more than at another.

TABLE A.—*Showing Age-incidence.*

Age.	No.	Age.	No.
1-5	30	20-25	3
6-11	13	36-	1
12-16	3		

Table A shows that 60 per cent. of the patients were under 6, and that 86 were under 12. It was therefore concluded that the question of age did not arise. Except in so far as albuminuria was admittedly indicative of a severe initial lesion, pre-existing toxic nephritis had little, if any, influence in determining late faucial bacillary persistence. 25 had been treated with B. & W.'s serum, 25 with P.D.'s. For all practical purposes, therefore, serum variation did not govern in any measure the future conduct of the *B. diphtheriæ* in each instance.

The most noteworthy point for consideration was that of previous infectious disease, more especially as it related to involvement of the respiratory tract and lungs. In many of the cases the diphtheritic attack had followed closely a previous measles or pertussis. In fact, the former infection was frequently a convalescent sequel of the latter. The very lack of resistance which predisposed to the diphtheritic infection presumably militated against the early dispersal of the invading bacilli. It appeared that mucous membrane damaged by the inflammations accompanying such fevers as measles and pertussis, especially when further violated by diphtheritic toxin absorption, formed a very suitable locale for the perpetuation of the *B. diphtheriæ*. 74 per cent. had been, in the more or less immediate past, the subjects of just such damaging influences as produced indifference to the presence of an organism which readily assumed saprophytic propensities.

It was anticipated that the longer the initial delay in administering serum the greater would be the liability to subsequent positivity. Patients saturated with toxin absorbed for three or more days would not be expected to have many antibodies (antitoxic or antibacterial) in their blood streams. Although the antitoxic properties of the latter were artificially enriched by the addition of antitoxin, no attempt was made to provide antibacterial substances.

TABLE B.—*Showing the Day on which Serum was First Injected.*

Day of illness.	Patients.	Day of illness.	Patients.
First	2	Sixth	6
Second	14	Eighth	1
Third	4	Twelfth	1
Fourth	5	Fourteenth	2
Fifth	14	Twenty-first	1

Thirty-four did not receive serum until the supposed third day or later (Table B). In fact, 25 did not reach hospital until the fifth or later day of illness. It was concluded, therefore, that length of untreated illness bore a direct relationship to probability of becoming a carrier.

Until a considerable number of cases had been dealt with, the possibility of simple coincidence bulked largely in any interpretation put upon the cures. Consequently, it was necessary to find some evidence which would negative such a conclusion. In the first instance, the vaccine was reserved for such patients as had been in residence for unduly prolonged periods. This was done deliberately, as most positive throats clear up sooner or later without interference. The successful application of the vaccine during the earlier periods of convalescence might have been inconclusive, since it was open to argument that the organisms were disappearing in any case, and that it was fallacious to credit the vaccine with their removal. In order to demonstrate that such a view was untenable, opportunity was taken to commence treatment at very varying periods of residence. Table C makes this clear.

TABLE C.

Week of residence.	Cases.	Week of residence.	Cases.
Third	3	Tenth	3
Fourth	7	Eleventh	2
Fifth	3	Twelfth	1
Sixth	5	Thirteenth	3
Seventh	2	Fifteenth	2
Eighth	10	Sixteenth	3
Ninth	5	Twentieth	1

It could not readily be assumed that in 50 consecutive cases, treated over periods ranging from the third to the twentieth weeks, mere coincidence offered sufficient explanation.

Table D indicates the dosage given in the series of cases.

TABLE D.

No. of organisms.	Cases.	No. of organisms.	Cases.
10,000,000	11	50,000,000	2
20,000,000	17	60,000,000	1
30,000,000	13	200,000,000	2
40,000,000	4		

In the majority a limited number of injections was effective.

TABLE E.

Doses of vaccine.	No.	Doses of vaccine.	No.
One	24	Five	3
Two	15	Seven	1
Three	5	Eight	1
Four	1		

Table E shows that by vaccinating every fourth day 44 of the cases, having received at most three doses, could have been dismissed with two consecutive "negatives" on the eleventh day. The time consumed in attaining our object varied within considerable limits—namely, 1 to 44 days.

TABLE F.

Days.	Cases.	Days.	Cases.	Days.	Cases.
One	19	Seven	3	Fifteen ...	1
Two	3	Eight	2	Twenty-four	1
Three	1	Nine	2	Twenty-five	1
Four	1	Eleven	1	Thirty	2
Five	7	Thirteen ...	1	Forty-four ..	1
Six	3	Fourteen ...	1		

Table F reveals these facts. Thirty-seven cleared up within a week, 7 within a fortnight, whilst only 6 took longer. It may fairly be accepted that, so far as the time factor was concerned, vaccine treatment of "positive" throats was unassailable by comparison with any of the other means advocated. On account of the exigencies of the situation, nearly three-fourths of the patients were dismissed within a week of the completion of treatment, as it was impracticable to retain large numbers for observation purposes. Fully one-fourth, however, remained for from 8 to 27 days without manifesting renewed "positivity" or sustaining reinfection, and this in spite of the fact that there was no segregation nor attempt at protection, as all remained in a receiving ward, liable at any time to the incursion of acute and virulent cases. If there had been any liability to reinfection every facility was offered. Such a test, of course, was unusually and unnecessarily severe, as no person outside of a hospital ward was ever likely to be the contact of such concentrated infection as were these patients. That they resisted faucial reinvasion may with confidence be credited to the provision of artificial specific antibodies.

No untoward effects were noted on the vaccinated patients. Pulse-rates were moderately increased for a few hours, the respiratory rate was mostly unaffected, pyrexia and local pain or stiffness were quite exceptional.

Administrative and economic points of view were fully satisfied, for, with the advent of war, retrenchment became a password, and any measure likely to check the rapidly mounting maintenance costs was welcomed. Vaccine treatment of the positive throat in diphtheria, when judged by a money-saving standard, was of considerable value. By a comparative estimate of averages, it was computed that the term of residence of a carrier was longer by four weeks than that of the non-carrier. The former cost the chargeable authority in food alone 35*s.* more than the latter, and if the term of residence of the annual total diphtheria admissions had been reduced to the reasonable average of five weeks fully £1600 might have been saved. However, such figures of cost need not be multiplied, as sufficient light has been thrown upon this aspect of the subject to justify the economic soundness of vaccine therapy in the positive throat of the diphtheria convalescent.

Conclusions.

1. Local antiseptic throat applications are unreliable cures for the carrier and the positive throat.
2. Diphtheria vaccine produces well-defined degeneracy in morphological appearance of the cultured organism, followed by its complete dispersal from the locality invaded.
3. In the past the diphtheria carrier has been subjected to hospital residence for weeks, perhaps months, which were avoidable.
4. Diphtheria vaccine is effective in the treatment of the positive throat of diphtheria convalescents, and its use is administratively and economically sound.

References.—1. Claude Buchanan Ker: Infectious Diseases: A Practical Text-book, pp. 420–421. 2. Osler: The Principles and Practice of Medicine, pp. 195, 207. 3. McVail: The Prevention of Infectious Diseases, pp. 184–186. 4. Osler and Macrae: A System of Medicine, vol. i., second edition, p. 732. 5. Bosanquet and Eyre: Serums, Vaccines, and Toxins, pp. 134–136.

UNIVERSITY OF OXFORD.—Dr. Charles P. Symonds has been elected to a Radcliffe Travelling Fellowship for three years.

IT was announced at the annual meeting of the Academy of Medicine of Paris that the Prix Berraute for researches on cancer was awarded to Dr. Alexander Paine, director of the Cancer Hospital Research Institute, and Dr. Albert Peyton, director of the Military Laboratory for Cancer, at l'Hôtel Dieu, Paris, for their joint investigations on the subject.

LIFE ASSURANCE AND GLYCOSURIA.

BY R. T. WILLIAMSON, M.D., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO THE ROYAL INFIRMARY, MANCHESTER.

QUESTIONS often arise with respect to life assurance and glycosuria which are of importance both to the assurance company and to the proposer. Several of these will be considered in this note.

Family History of Diabetes.

In the medical report required by a few companies a question is specially asked, if any member of the proposer's family has suffered from several diseases regarded as hereditary; amongst these diabetes is included. But in the majority of the medical report forms with which I am acquainted, no question is specially asked respecting diabetes in the family. This information, as regards near relatives, will, however, be furnished by the usual family history required by almost all companies. The question arises to what extent a family history of diabetes (whatever this may actually mean) should lead to an increased charge for life assurance. The statistics of insurance companies might throw some light on this point; but more satisfactory evidence is furnished by statistics indicating the percentage of cases of diabetes in which a family history of the disease is obtained.

I have not taken careful notes of the family history in most of the cases of diabetes I have seen, but I have notes on three series of consecutive cases which are sufficient to be of service in this respect. In 1898 I published the statistics in 100 consecutive hospital cases. More recently I took careful notes on this point in a series of 300 consecutive private cases, and quite recently in another series of 100 consecutive private cases.

Cases of diabetes.	Family history of diabetes in—
1st series of 100 cases	13 = 13 per cent.
2nd ,, 300 ,, ...	76 = 25 ,,
3rd ,, 100 ,, ...	23 = 23 ,,
500 ,, ...	112 = 22·4 ,,

Therefore we may conclude that the percentage of cases of diabetes in which a family history of the disease is obtained may be fairly stated as 22. (Control statistics show that in 50 consecutive cases of other diseases (non-diabetic) no family history of diabetes was obtained.) Usually when a family history was obtained, the diabetic patient could only recall one member of the family who had also suffered from the disease. But occasionally 2, 3, 4, or more cases of diabetes had occurred in the diabetic patient's family.

The following are a few instances of members of the same family suffering from diabetes:—

1. Two sisters, father, father's sister, father's father, father's grandfather.
2. A medical man, his father, father's mother, and father's brother's son.
3. Father and mother and three sons.
4. In a family of four (two brothers and two sisters) two brothers and one sister suffered. They lived in different towns and suffered at different periods.
5. Father and two sons.
6. Three sisters.
7. Three brothers.
8. Father, two sons, and two daughters.
9. Two brothers, the father, and the father's mother.

Many instances of brother and sister, or two brothers, or two sisters suffering from diabetes were met with in the 500 cases specially questioned.

A history of diabetes in one member of the family would not, of course, be regarded as requiring an extra charge for life assurance. But I think a minimum extra charge would be desirable, if we find that (1) two brothers of the proposer or two sisters, or one brother and one sister have suffered from the disease; or (2) if both parents have been diabetics (a very rare occurrence) and also one brother or sister of the proposer; or (3) if one parent and a sister or brother of the other parent and also one brother or sister of the proposer have been diabetic; or (4) if one sister or brother and one of the parents and one of the grandparents have been diabetic. These extra charges would be especially desirable if the patient were of the Maltese, Hebrew, Hindu, or western Asiatic races.

Detection of Grape-Sugar in the Urine.

(1) If Fehling's test or one of its modifications should give a reaction for sugar in the urine, and other symptoms of diabetes are noted, the case is, of course, permanently rejected without further consideration.

(2) If we have no symptoms or indication of diabetes, but Fehling's solution (or some modification thereof) is reduced *definitely*, the case should be rejected, temporarily at least, even though the reduction is very slight. Mostly these cases are due to a small amount of sugar in the urine, but sometimes to other substances. Repeated examinations and much care are required before a fair opinion can be given respecting their exact nature. These observations take up much time, and I think if they are undertaken, or required, a separate fee should be paid for them. At a later date the results may be submitted and the case reconsidered, if the proposer or the company so desire.

(3) When the reduction of the Fehling's solution is *indefinite*, before rejecting the case confirmatory tests for sugar should be tried at once, within the next 24 hours, and the report withheld for that time or longer. If the indefinite reaction is due to a trace of sugar the case should be rejected temporarily; if indefinite, but not due to sugar, I think the case may usually be accepted.

The confirmatory tests for glucose in groups 2 and 3 which I have found most useful are the phenyl-hydrazin test, carried out in a test-tube (without the use of any water-bath), and the fermentation test, carried out in an inverted test-tube closed with a stopper perforated by a glass tube bent twice at right angles (a control test-tube with normal urine being placed by the side of the one containing the suspected urine). I have previously described both of these tests in detail.[1]

If we obtain by these tests no indication of glucose, the outlook is more satisfactory. The nature of the substance which had reduced the Fehling's solution, if the reaction is definite, should be determined if possible by chemical tests.[2] The exact rating will differ according to the nature of the reducing substance. If we find the reducing substance is grape-sugar, I think most physicians will agree that the case should be rejected, at least temporarily, however small the amount; and I think most companies would reject permanently.

But later, if the proposer and the company desire, the cases may be reconsidered in certain instances, when the results of a number of observations can be furnished. Most cases at this reconsideration would have to be rejected again, and rejected permanently, I think; but in very rare instances a case might be accepted if the results of a number of observations can be presented. These observations are of importance to the proposer as regards future treatment and mode of life, and should be carried out by those who undertake the treatment; but, as will be mentioned subsequently, it is improbable that assurance companies will care to recommend them or pay for them, except in very rare instances, on account of practical difficulties.

The first point is to determine if the slight glycosuria is permanent or temporary by testing a number of specimens.

The urine specimen tested should not be the early morning urine, but one passed in the latter part of the day, and best after a meal; in slight cases of glycosuria the morning urine is often quite free from sugar, though urine passed in the latter part of the day may contain sugar in considerable quantity.

If the glycosuria is permanent—i.e., detected every day—the urine is tested, or if the glycosuria is intermittent the case should be rejected, however small the amount of sugar. If glucose is detected once only and then disappears, and is not detected again after a number of examinations, and the urine is free from sugar at the end of one month, the condition may have been a temporary glycosuria. In such cases it is desirable to determine if the power of sugar destruction is reduced or not. A common method is to give 100 g. of glucose, dissolved in a quarter of a litre of water, or tea, which is taken on an empty stomach before breakfast. If the power of sugar destruction is diminished then sugar is found in the urine from half an hour to three hours afterwards. If the power of sugar destruction is normal the urine will be free from sugar after this dose of glucose. A convenient, though less accurate, way of testing is that the proposer should take a midday meal containing a quantity of sweet food equal to 100 g. of grape-sugar. A rough test is three-quarters of a pound, or one pound, of *sweet* grapes. The bladder is emptied just before the meal. Then urine is passed about an hour and a half after the meal and again three hours after the meal. If these urine samples fail to reduce Fehling's solution the power of sugar destruction is normal or not markedly reduced. If one or both of these urines reduce Fehling's solution the power of sugar destruction may be considered diminished.

If the urine gives a reaction for sugar on one examination (at the examination for life assurance) and not at subsequent examinations, but the power of sugar destruction is reduced as shown by the test just mentioned, then I think the case should be rejected. These cases may be described as cases of diminished power of sugar destruction in which temporary glycosuria may be produced occasionally by various causes, and I think they are best rejected, though it does not necessarily follow that diabetes will develop later.

But if sugar is detected once only, if we have no diabetic symptoms, if the amount of sugar is small, and if during the next month several examinations of urine passed in the latter part of the day show that it is free from sugar on an ordinary mixed diet, and if the power of sugar destruction as tested in the way just mentioned is not diminished, then I think the case may be accepted with an extra charge, especially if we obtain a history of excesses in diet or other unusual conditions at the time the glycosuria was detected. Only this small group of such cases can, in my opinion, be safely accepted. Of course, in such observations the proposer must be completely trusted to carry out the instructions fairly; hence probably few companies would be willing to accept the results, and most companies would regard the detection of sugar on one occasion as ground for permanent rejection. But these observations are all of much value to the proposer with respect to future dietetic treatment.

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[1] See writer's articles in the Practitioner, December, 1898, and August, 1900, and book "Diabetes Mellitus and its Treatment," Lond. and Edin., 1898, pp. 19 to 23 and 35 to 38.

[2] See writer's book, "Diabetes and its Treatment," Lond. and Edin., 1898, pp. 33 and 34.

As examples of the rare cases of glycosuria just described I may mention the three following.

Twenty-five years ago I examined a man, aged 34, for life assurance and found that the urine reduced Fehling's solution, but no diabetic symptoms could be detected. I tried confirmatory tests, phenyl-hydrazin and fermentation, and proved that the reduction of Fehling's solution was actually due to grape-sugar. A second sample of urine examined two days later was quite free from sugar. Though 25 years have elapsed, he is in good health and no symptoms of diabetes have ever developed.

In another case sugar was detected in the urine of a young man of 25. A few days later it was free from sugar. Five years later it was still free from sugar. Last year I examined the urine again and found it still free from sugar—that is, over ten years from the time the temporary glycosuria was first detected.

In another case the urine of a man of 35 was found to contain a small amount of sugar. (By the phenyl-hydrazin test and fermentation I proved this was grape-sugar.) A few days later I found the urine free from sugar. I examined the urine last year—ten years after the glycosuria had been detected and found it still quite free from sugar.

Termination in Cases of Glycosuria.

Though I think only the one very small group of cases of glycosuria just mentioned can safely be accepted (with an extra charge) by an assurance company, we must not conclude that all other cases necessarily end badly. There is, however, no hardship in excluding them; these people can invest their money in other ways. The course of the affection is probably influenced by the mode of life, but as the assurance company cannot be sure what mode of life will be followed it is usually best to avoid the risk.

Now the question is often asked what happens in the cases of slight glycosuria detected for the first time at the examination for life assurance. I have indicated the further course of such cases in a chart previously published.[3]

(1) The glycosuria may promptly disappear and never be detected again, and complete recovery may occur (as in the three cases already mentioned in this note). This course is more probable in cases in which the power of sugar destruction is not diminished. When, however, the power of sugar destruction is diminished, as indicated by the 100 g. glucose test (or some modification thereof), we have greater risk that the course will be that indicated in one of the following groups.

(2) The temporary glycosuria may be followed for many years by an occasional or intermittent slight glycosuria which never develops into a true diabetes, even after 10 or 20 years or longer.

(3) In other cases this intermittent glycosuria after many years, 5, 10, or 20, or longer, develops into a severe diabetes, ending fatally.

(4) The temporary glycosuria may be followed by an intermittent diabetes mellitus.

(5) Or by a *mild* form of persistent diabetes.

(6) Or by a persistent *severe* form of diabetes.

Forms 4 and 5 may develop later into severe persistent diabetes. In forms 2, 4, and 5 death may occur after many years, through an intercurrent disease having no direct connexion with glycosuria.

All physicians who have been in practice over 20 or 30 years will be able to recall instances of these groups. As examples of group 2 I may mention two cases of glycosuria, in which the glycosuria has been intermittent, gradually becoming less frequent, for 20 and 10 years respectively.

The following are examples of group 3.

A patient had suffered from slight intermittent glycosuria for 24 years. Then severe diabetes suddenly developed and ended in diabetic coma.

In another case after 17 years of slight and intermittent glycosuria severe progressive diabetes suddenly developed, and after a few months death occurred from cardiac failure.

In another case after a period of glycosuria the urine became free from sugar, and the patient remained in good health and had no symptoms, and the urine was not tested for many years. At the end of 12 years diabetic symptoms developed and the urine was found to contain sugar, and in a very few days death occurred from diabetic coma.

Importance of the Detection of Glycosuria to the Proposer.

The most important point with reference to life assurance and slight glycosuria is the advantage of the urine examination to the proposer, if he is informed of the result and its significance not exaggerated. It is to his advantage, that if the urine contains a little sugar it should be detected *early*.

It is a rule of many assurance companies that no information as to the result of the medical examination should be given by the medical officer to the proposer. But in cases of glycosuria I think, in the interest of the proposer, he should be informed why he has been rejected. This could be done best by the medical examiner, who could also inform the proposer of the exact significance of the glycosuria and of the importance of treatment, and could do this without causing alarm.

We cannot claim to be able to prevent diabetes, but we do know something of the ætiology of the disease, and we may be able to do something to prevent the slight glycosuria developing into a severe diabetes.

(1) If the urine contains a small amount of sugar daily, or if the condition is one of intermittent glycosuria, the rigid dietetic treatment (with or without drugs) suitable for a mild form of diabetes should be carried out.

(2) If the urine contains sugar at one examination but on further examination is found free from sugar, though the power of sugar destruction is impaired, then all sugar and sweet foods, sweets, chocolate, and sweet drinks, especially sweet alcoholic drinks, should be excluded from the diet, and the carbohydrates should not be excessive, but an average quantity can be taken. (Starch is probably much less injurious than sugar.)

In both of these classes the mode of life should be altered if necessary. Great mental strain and excessive brain work should be avoided if possible. A fair amount of physical exercise should be taken, and the total quantity of food should not be above the average; also I think that small frequent meals are best. It appears probable that excess of sugar in the diet, sweet beverages, especially those containing alcohol and much sugar, excessive brain activity or anxiety, deficient physical exercise, and obesity or excess of food, often increase the risk of the diabetes or accelerate its onset, especially in individuals who have a family history of diabetes.

(3) When the urine contains sugar on one occasion only, and we find no defective power of sugar destruction, then the only precaution necessary is to limit the amount of sugar and sweet food, or best to abstain entirely from sugar, sweets and chocolates, and very sweet food or drinks.

Dread of Diabetes.

When the proposer is informed of the glycosuria it is important that he should not be alarmed. Treatment should be urged, but the favourable features in the prognosis should be emphasised, when this is justified by the condition found. He should clearly understand that though he is unsuitable for life assurance it does not follow that serious and progressive diabetes will necessarily occur, and that he may be able to do much to prevent such an event. We occasionally meet individuals who suffer greatly from the "fear of diabetes," when informed that a little sugar has been found in the urine—a neurosis similar to that known as "syphilophobia," which is most difficult to check I have seen a number of such cases. In one instance the neurosis continued for over two years. A trace of sugar had been detected once only, at the examination for life assurance. The man was the son of a medical man and was acquainted with many medical terms. A terrible dread of diabetes developed and continued, though the urine was examined repeatedly by numerous medical men and no further glycosuria ever detected. Finally, he visited Carlsbad, where again no sugar could be detected in the urine, and treatment was refused. He returned home still distressed and unsatisfied. He consulted me after two years of mental anxiety. I examined his urine, and found no trace of sugar, even after a meal containing a great excess of sugar.

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[3] See Practitioner, June, 1911.

Such instances show how important it is that the proposer should not be alarmed when he is informed of the slight glycosuria.

A NOTE ON THE DIAGNOSIS OF

TUBERCULOSIS IN RECRUITS AND PENSIONERS.

BY JOHN GUY, M.D., D.P.H. CAMB., F.R.C.P. EDIN.,
TUBERCULOSIS OFFICER, CITY OF EDINBURGH; LECTURER ON TUBERCULOSIS IN SCHOOL OF MEDICINE OF ROYAL COLLEGES, EDINBURGH.

THE relation of the tuberculous patient to war service is interesting. In the earlier days of the war we heard a great deal of the cured consumptive who had joined the army. Institutions in their reports apparently vied with each other as to the number of their ex-patients who were at the front. At one time it appeared that the motto which would possibly be inscribed over all sanatoriums was "We won the war." After a little experience of the cured consumptive, and a short period of observation, the War Office issued stringent instructions to the intent that no consumptives need apply. As far as one could judge the orders meant total rejection for any recruit who had been at any time in a sanatorium or under treatment at a tuberculosis dispensary. This knowledge speedily reached the laity, and those men who were not over-anxious to run the risk of being killed were delighted if at any period in their lifetime they had been under treatment for actual or suspected tuberculosis. I answered not a few letters from recruiting boards who were desirous of testing the truth of some of the assertions by recruits of attendance at the City Dispensary. Several of the cases inquired into were genuine tuberculous patients, but others whom we had classed as slight bronchitis or some other non-tuberculous condition attempted, and sometimes attempted successfully, to evade service on the strength of having attended the dispensary once or twice many years previously.

The Attitude of Recruiting Boards to Tuberculosis.

Nothing apparently scared the recruiting boards like the word tuberculosis. I could place my finger on one or two men who, to my own personal knowledge, secured admission to a sanatorium for the purpose of avoiding service, and who, as far as I know, had no tuberculous disease in the lungs at all. One at least confessed to me that he had "got the wind up," and on being told that there was nothing wrong with his lungs, inquired anxiously as to whether if he could contract a cold it would make any difference. He gained admittance to a sanatorium all right. I suppose he will be returned as one of the cures discharged in the year 19—, and now, at the beginning of 1920, is well and working.

It was a good thing in those days to be supposed to have consumption, but it is a much better thing now. The day of pensions has arrived. The number of men who are now in receipt of pensions for tuberculosis and who, in my judgment at least, are not suffering therefrom is truly alarming. I have seen in one week alone at least eight men who, in my opinion, showed either no evidence of pulmonary tuberculosis, or at most presented what might be interpreted as an old cicatricial condition, the age of which no man could tell, but showing no signs of activity and producing no disability whatever. Nevertheless they had a pension. My experience is, I take it, not unique. I have had much confirmation of this state of affairs from my brother tuberculosis officers by written and conversational inquiry.

The cause of this state of matters is complex. While the war was in progress it was perfectly natural, and I believe not uncommon, for some men to attempt to get out of the trenches for a longer or shorter period on the pretext of illness. The conditions of life, the physical stress, and the mental strain produced in many the constitutional syndrome which is often presented in tuberculosis. This made it difficult to give an exact diagnosis of any real or supposed illness, and if any departure from the normal were discovered in the lungs too often the man was labelled as tuberculous and discharged as unfit for further service.

Too frequently in the well-known 1835 certificates the diagnosis rested on an X ray finding of that very unsatisfactory thing, peribronchial thickening, or some such indefinite condition. Yet these 1835 certificates were a power in the land. Whoever signed them had to state whether it was essential or not that the man should go to a sanatorium. If he signed in the affirmative, then to a sanatorium the man was sent, and whenever he appeared at a future medical board for reassessment the fact that he had been in a sanatorium was considered as proof that he had had tuberculosis.

Generous Pensions.

Again, now that the war is finished, it is becoming known that the scale of pension is much more generous in the case of the tuberculous than in the non-tuberculous, and, in addition, there is the chance of the extra domiciliary grant equivalent to 10s. per week. This makes it profitable to be labelled "tuberculous." Consequently, many men are now, after demobilisation, discovering, or imagining, that they have a cough and a spit in the morning; that they have lost weight and are breathless on exertion; and too often on such flimsy evidence are classified P. 25, which, being interpreted, means pulmonary tuberculosis. After a medical board has given such a finding these men ultimately wend their way to the tuberculosis officer for the district. Many of them I turn down promptly and inform them that in my judgment they do not suffer from tuberculosis. To some of them I appear as an angel of light, but to others a rock of offence. At times, instead of giving a definite judgment at once, I admit them to the sanatorium for a period of observation. If they are found then not to be suffering from tuberculosis that does not necessarily finish the case, as the next time they appear before a board for reassessment they have then, as added proof of the presence of disease, the fact that they have been in a sanatorium.

Another source of error is that at times indefinite cases present themselves before a board on which there is no member who has had special experience in the difficult branch of chest work. Such a board is usually timorous and doubtful of its own experience. It plunges for tuberculosis every time. It does not fully realise the weight its decisions carry. At other times the board may have had the assistance of a tuberculosis "expert." Such an individual usually sways the judgment of the board, as he does the examination, and the other members do the clerical part of the work. The assistance of the expert does not always improve matters. Tuberculosis experts are divisible into two classes, wise and unwise. The latter, suffering from grandiose ideas, are prepared to diagnose pulmonary tuberculosis at a moment's notice anywhere and everywhere, and if one such becomes the guiding spirit in a medical board still further confusion may result.

A Special Chest Board.

In order to improve the present condition of affairs, all chest cases, tuberculous and non-tuberculous, should be dealt with by a board composed of members all of whom should be experienced in chest work. Not less than two should examine every case, and when any doubt exists the opinion of all the members would, of course, be obtained. All chest disabilities discovered or suspected by the other boards should be referred to the special chest board for final decision. All new claims of chest disabilities by demobilised men should be dealt with by the chest board.

Whenever a man has had sanatorium or dispensary treatment this board should be authorised to ask for a special report on the man's case from the tuberculosis officer for the district in which the man comes from. There should be no difficulty in this, as I think we all file the discharge report of our sanatorium cases. If such report were received by the special board it could be placed with the man's papers and kept as a permanent record.

The special board should not be asked to work in the same room in which two or three other boards are working and where the men are undressing. It is quite impossible often to do good work owing to the noise, and more particularly is this so if any of the other boards happen to be an aural one. The chest board might reasonably occupy rooms at one of the tuberculosis dispensaries, where an X ray installation is at hand and where there are facilities for the examination of sputum.

Such special boards should be asked to pay particular attention not only to the presence of any lesion, but to its activity and to the amount of disability arising. As indicative of activity the board should demand in preference to symptoms signs, such as rapid or marked loss of weight, a medical certificate of hæmoptysis or fever, the presence of tubercle bacilli in the sputum, and the presence of persistent localised crepitations.

Too much stress should not be laid on slight impairment of the percussion note in the right apex or the presence of broncho-vesicular breathing or apical retraction. These may quite truthfully represent a lesion, but the important points are activity and disability. Such a board might also very properly form a final court of appeal in all doubtful cases seen by the medical referees.

Throughout this paper I am not discussing the genuine consumptive, but rather the indefinite case simulating pulmonary tuberculosis. The man should have the benefit of any doubt after exhaustive examination and be given a high assessment. The period between examinations for reassessment should, as a rule, be not more than six months. As the cases come up for review and pass into the quiescent or arrested condition they should be reduced by 10 or 20 per cent. at each examination, so that the reduction in pension would correspond with the permanent improvement in health.

Could such a board as I visualise be instituted for each large centre, I am confident it would at once justify its existence and be a source of strength to all engaged in this most difficult and trying work.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A BONE CONDITION ANALOGOUS TO RICKETS IN A CHILD OF FIVE MONTHS.

BY HILDA K. BRADE-BIRKS, M.SC., M.B., CH.B.MANCH., M.R.C.S., L.R.C.P.,
MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE, SALFORD.

IN view of recent discussions on the ætiology of rickets the following symptoms occurring in a breast-fed infant appear to be worth recording.

A girl, born July 16th, 1919, the sixth child of a mother aged 31 years, was brought to one of the Salford corporation guilds. At the age of 4 weeks, when first weighed, the baby was a healthy, normal, breast-fed child weighing 8 lb. 1 oz. For three weeks she continued to gain normally, weighing 9 lb. 5½ oz. at the age of 7 weeks. From that time progress was less satisfactory and the weight fell below the normal. At the seventeenth week, when the child weighed 10 lb. 7 oz., symptoms analogous to those of rickets were observed. Three weeks later the infant was brought to the clinic for special medical examination. At this time the mother had noticed a considerable decrease in activity (the child showed no inclination to kick, and lay listless all day). The forearms were bent with an outward curve. There were comparatively large swellings at the distal ends of the radius and ulna in either case. The radial swellings were the greater, and those of the left forearm were more marked than those of the right. In the lower limbs the tibiæ exhibited marked forward and outward curves, each tibia having an obvious swelling of the anterior part of its distal extremity. Another swelling occurred on the right tibia at the lateral and anterior part of its proximal end. The head was normal in shape and size, and the spine presented no unhealthy symptoms. The skin of the whole body was dry and slightly rough. Constitutional symptoms (slight sweating of the head at night, listlessness during the day, enlarged abdomen, slight alimentary disturbances, &c.) were commencing but were not marked. The child was still breast-fed only and weighed 10 lb. 13 oz.

History of the mother.—As the child had been breast-fed it was thought advisable to inquire into the history and condition of the mother. The latter had had six living children, as follows: the first at the age of 22, the second at 24, twins at 26, a fifth child at 28, and the girl referred to above at 31. Of these, she lost two, one of the twins and the fifth. The mother herself is thin but muscular; she is one of nine healthy children all living. The last confinement was normal. The financial circumstances of the parents were fair, the husband being in the army, and the mother had apparently been well nourished during pregnancy. Her diet included no butter, but she had a pint of milk every day during the whole of her pregnancy and after. Her breakfast consisted of bread and margarine, bacon (sometimes), and any other thing that could be got at the time. Dinner consisted of fish or meat stews, potatoes, and vegetables of all types. Tea—bread and margarine. The pint of milk daily was used between meals in the form of gruel. During the first four months of pregnancy the mother was a waitress at a nurses' canteen and got very good food. The money she saved helped her through the other months and her confinement. The lungs and heart were normal and the urine free from albumin and sugar. The mouth had been well cared for and was free from any trace of pyorrhœa.

Samples of breast-milk were taken on Dec. 12th, 1919. Mr. G. D. Elsdon, Salford borough analyst, was kind enough to examine these, and to supply me with the following figures :—

	Right breast.		Left breast.	
Fat	1·9 per cent.	....	0·3 per cent.
Proteins	1·2 ,,	....	0·9 ,,
Ash	0·2 ,,	....	0·2 ,,
Sugar	7·3 ,,	....	7·3 ,,
Total solids ...	10·6 ,,		8·7 ,,

In comparison with the averages of Pfeiffer and of Luff this milk is particularly deficient in fat (the sugar percentage is slightly above normal, the protein subnormal).

Massage treatment.—When the infant was first noticed to have rickets-like symptoms (Nov. 11th, 1919) massage treatment was begun. Until Dec. 2nd, 1919, breast-milk was the sole food, but as progress was still unsatisfactory, alternate feeds of boiled cow's milk with water and of breast-milk were then ordered. Within a week an obvious improvement took place, the child having gained 6½ oz. Since the analysis of the mother's milk the child has been weaned gradually, and boiled cow's milk substituted. The massage has been continued to date three times a week. Apart from a general improvement in health, all the affected bones of the limbs have become considerably straighter, and the wrist and ankle swellings have been correspondingly reduced. On Jan. 6th, 1920, the child weighed 11 lb. 14 oz.

Present condition (March 9th, 1920).—The child now weighs 13 lb. 8½ oz., and is in very fair condition. The bones are practically normal in shape, but rather soft, and the flesh is not yet very firm. However, the child is bright, active, and contented. The teeth are appearing, though none are yet quite through. Massage is being given twice weekly. The child has had a small quantity of virol for the last few weeks, otherwise the diet is boiled cow's milk. No cod-liver oil has been given.

The term "analogous to rickets" is used to prevent controversy as to terms. There seems to be a current belief that typical rickets cannot occur in a child so young; however, the signs in this case were as typical as any I have seen.

TWO CASES OF ICHTHYOSIS HYSTRIX IN THE SAME FAMILY.

By L. MEREDITH DAVIES, M.D. OXON., D.P.H.,

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER OF CARDIGANSHIRE.

THE following two cases are of interest for several reasons. Firstly, the comparative rarity of the disease; secondly, its congenital origin; and thirdly, the unusual positions of the warty growth. The two cases were found during the medical inspection of the schools in the county, the patients being brothers.

Family history.—The father's brother married the mother's sister. History of tuberculosis on father's side. No history of skin trouble or of illness of importance on either side. The mother's sister has four children, two of whom—the eldest daughter, aged 10 years, and the baby, aged 10 months—have typical ichthyosis.

Origin of disease.—The mother describes the condition of the two boys at birth as follows: "They were born with their hands and their feet covered with a film, as if whitewashed." The white film refused to be washed off, but later, when the superficial layers had loosened, the underlying skin was rough and dry. When about one year old warts were first noticed on hands and feet, and these gradually spread and increased over rest of body. The other two children, who are unaffected, have been sleeping with them, and using the same towel. The mother has paid great attention to washing the boys.

Present condition.—The two brothers are aged 12 years and 9 years respectively. The skin of the face is dry and scaled, but clear of warts. Above the collar is a definite ring of greyish warts. The rest of the skin of the body is dry and scaly, and superimposed are numerous warts, varying in number in different localities. In the neighbourhood of the joints, dorsal surface, and palms of hands and axillæ the warts are especially numerous, and so closely packed that no normal skin can be seen. The penis also of the younger boy is covered with warts. The warts are greyish in colour, and measure about 2–3 mm.

The great number of the warts can be emphasised by the fact that the previous diagnosis made was "warty growth of skin." The boys have been sent to hospital, but no good result has been obtained. The present treatment consists of washing with cuticura soap and the application of olive oil.

TOTAL INVERSION OF THE PARTURIENT UTERUS.

By W. G. EVANS, L.R.C.P. EDIN.

THE interesting case of total inversion of the parturient uterus reported by Drs. H. Townsend-Whitling and Norman Glover in THE LANCET of Feb. 28th induces me to report a similar case that occurred in my work last summer.

My case was also a primipara aged 28 years, which followed a normal and easy course until the birth of the child, when an alarming gush of hæmorrhage occurred which caused me to direct my attention to the condition of the fundus; failing to find it, I concluded that I had to deal with concealed hæmorrhage, and on looking to see if any loss was going on I found the whole uterus extruded with the tubes standing out at either side as tense hard cords. The placenta was lying on the sheet and there was no hæmorrhage. Realising that time was of the greatest importance, my right hand being gloved, I placed a finger and thumb on the outside of the stretched tubes as far up as I could, being careful not to grasp the neck of the tumour; I pressed upwards as firmly as I could and the whole thing slipped back at once. Passing my hand into the uterus to feel if the inversion was fully reduced I found a tumour, the size of a small apple, with the central cavity the depth of the first phalanx of my index finger. Supporting the fundus with my left hand on the abdomen and pressing my knuckles against this, it spread out at once. There was no shock or hæmorrhage and convalescence was normal.

The absence of all serious symptoms was due, I believe, to the promptitude with which the condition was relieved, the reduction not taking more than from 20 to 30 seconds, and the involution not lasting more than about two minutes.

Beckington.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on March 19th, Mr. **HERBERT TILLEY**, the President, occupying the chair.

Attic Suppuration with Latent Antral Disease.

The **PRESIDENT** showed an instructive case in which chronic suppuration of the left attic gave practically no indication of the extensive suppuration in the antrum and mastoid cells which was found at the operation. The patient, a girl aged 18, complained of nothing more than some deafness and occasional pain in the left ear. Shrapnell's membrane was seen to have a small perforation, and suction by means of a Peters-Siegel's speculum was applied, when pus exuded. Deep pressure over the outer walls of antrum and mastoid process caused slight pain. The patient having been advised against operation, it was difficult to obtain consent, but the speaker did the conservative mastoid operation and found the antrum full of pus, and a tract of suppuration extending through the mastoid cells and denuding an area of the lateral sinus. The President contended that the case showed the need for discarding the operation of ossiculectomy, still advised by some otologists, for the treatment of chronic attic suppuration, particularly because, in most of these cases, the real focus of the disease was in the antrum or the mastoid cells. It was difficult to persuade people whose drum seemed healthy that there was serious disease deeper.

Mr. **ARTHUR CHEATLE** congratulated the President on the case, also the patient, and expressed his strong agreement with the exhibitor's remarks on ossiculectomy.

Mr. W. **STUART-LOW** deprecated the use, in such cases, of attic syringes. He had seen ossiculectomy very skilfully performed, but he did not agree with it, owing to the danger of lighting up latent foci of disease.

Mr. E. D. **DAVIS** referred to cases of chronic attic suppuration, generally met with in old people whose only symptom was discharge. On opening these the disease was usually seen to be confined to the attic, yet probably these patients got progressively deaf and had some intracranial complication.

Mr. **HUNTER TOD** objected to the sweeping condemnation of ossiculectomy, though he agreed it should only be carried out after grave consideration. It was by no means an unjustifiable procedure. Some years ago he published a series of 50 cases in which the operation had been done. As many as possible were subsequently followed up, but only three came back to have the mastoid operation performed. One died. He warned each of the patients that they might need a more thorough operation if symptoms returned. In some there was merely a suppuration in the mucous membrane, and for these ossiculectomy seemed to suffice. He discussed the matter in some detail, and particularised some successful cases.

Mr. J. F. **O'MALLEY** felt, with Mr. Cheatle, that mere removal of the ossicles was not likely to get rid of the whole of the disease in the kind of case described by the President.

Dr. W. **HILL** said his experience of ossiculectomy had been varied; in some cases he felt it had not been enough, in others he had been well pleased with the results. He had not practised it during the last five years, and did not think it should be by any means a routine.

Dr. **DUNDAS GRANT** considered that ossiculectomy certainly had its place in aural surgery. But when, as in Mr. Tilley's case, deep pressure over the antrum caused pain, that was a reason for not being content with ossiculectomy. He reminded members of cases of cholesteatoma, vertigo, and headache he had shown before the section in which mere ossiculectomy permanently cured the condition.

Dr. W. H. **KELSON** thought the pendulum had swung too far in the direction of operation for slight symptoms, such as discharge from the ear and but little else, and that many would get well under simple non-operative treatment. He had seen it stated in a book which posed as an authority on aural practice that such things as spirit drops and peroxide could not possibly cure chronic suppuration—the kind of untrue statement which should never be made.

Mr. **MARK HOVELL** agreed with Dr. Kelson, and spoke of the value of collosol argentum.

The **PRESIDENT** replied.

Bezold's Mastoiditis.

Mr. **O'MALLEY** showed a patient on whom he had operated for this condition. When seen the temperature was 101° F.; there was a swelling in the neck below the right ear and a free discharge from that ear, the mastoid being very tender. At the radical mastoid operation he found very extensive bone disease, extending through the tip of the mastoid into the abscess in the neck. There was also a peri-sinus abscess on the sinus wall, with masses of granulation tissue. Recovery was steady and uninterrupted.

The case was discussed by Dr. **GRANT**, Mr. **STUART-LOW**, Mr. L. **COLLEDGE**, the **PRESIDENT**, and Mr. W. M. **MOLLISON**.

Damage to Auditory and Destruction of Vestibular Nerve by Blow on Mastoid.

Mr. T. B. **LAYTON** showed a man, aged 33, who had been struck by a piece of shell on the right mastoid process. He had been deaf in the ear ever since. After being struck he was unconscious for two or three minutes, and continued for two months to have severe attacks of giddiness and headache. The tests carried out—which were detailed—showed that the vestibular nerve was destroyed and the auditory nerve partially so.

Several other cases were shown.

HUNTERIAN SOCIETY.

Modern Physiotherapy.

AT a meeting of this society, held on March 10th, at the School of Oriental Languages, the President, Dr. W. Langdon Brown, being in the chair, a paper was read by Dr. F. H. Humphris on Modern Physiotherapy. According to Dr. Humphris, this term includes treatment by all measures other than drugs, but he only had time to deal with three branches—the static wave current, diathermy, and radiotherapy. The most useful of the different currents derived from the static machine is that known as the wave current. The speaker described this current as appropriate for the treatment of almost every form of non-infective inflammation, acute or chronic, the presence of pus being a contra-indication. It acts by relieving congestion or stasis in conditions such as sprains, lumbago, neuritis, enlarged prostate, and so forth. Diathermy, or electro-thermic penetration, is an intensive form of high frequency. This current when passing through the body has no other effect than that of heat, and its value depends on the power to produce heat of any required intensity at any depth and within any part of the patient's body. Dr. Humphris described experiments made by him on pieces of steak and potatoes with diathermy, proving that the heat in the depth of the tissues is much greater than that on the surface. He then indicated the conditions for the therapeutic use of this current. These include a high blood pressure, and local lesions such as stiffened and painful joints, acute gout, migraine, neuritis, adhesions after abdominal operations, and disorders of menstruation. The surgical use of diathermy varies from the destruction of hæmorrhoids and papillomata of the bladder to that of rodent ulcers, nævi, or corns. X rays produce their effect in malignant disease by causing œdema of the endothelial lining of the blood-vessels, with subsequent occlusion of the artery, thus cutting off the nutrition of the growth; moreover, they have a special destructive action on new cells. X rays have proved useful for painful cicatricial tissue, non-suppurating tuberculous glands, keloids, exophthalmic goitre, uterine fibroids, induction of an artificial menopause, Hodgkin's disease, and various skin diseases. Dr. Humphris concluded an interesting paper by an estimate of the value of X rays in malignant disease and the conditions under which this treatment should be advised.—In the discussion which followed the President suggested that in eczema

X rays were used more for the pruritus than for the eczema itself. He agreed with Dr. Humphris's views on the value of X rays in the treatment of malignant disease.—Mr. J. Adams used it successfully in cases of malignant tongue unsuitable for surgery.—Sir H. E. Bruce Bruce-Porter testified to the good results he had seen obtained in the treatment of enlarged prostate, and asked Dr. Humphris to explain how it was that it arrested the frequency of micturition.—Sir James Purves Stewart also pointed out that a high blood pressure was not of necessity a matter for treatment.—Dr. Humphris, in reply to an inquiry by Dr. Adams as to how surgical diathermy acted behind the apparent sphere of action, said that the benevolent effects were due to the increased circulation set up in this region. Answering Dr. M. C. Corner, he said that as far as he knew this current had never been used in post-partum hæmorrhage. As regards the way in which frequency of micturition was reduced by the treatment of enlarged prostate, Dr. Humphris said that muscular contractions were induced, the gland tissue was compressed, the products of inflammation being squeezed out; a tonic circulation was then restored to the gland by the electrically stimulated cell activity. Each successive treatment gave more and more power to the muscular fibres, more tone to the glandular structure, leaving the gland smaller and of more normal consistence. Dr. Humphris was sure that Sir James Purves Stewart would admit that in many, though not in all, cases a lowering of high blood pressure was desirable. In diathermy we had a means of relieving the pathologically increased tension of the persistently contracted arterioles, and a simple therapeutic measure of approximating the blood pressure more nearly to the normal.

Dr. J. E. H. Roberts then gave an illustrated address on the Treatment of Septic Fingers.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Idiosyncrasy to Drugs.

AT a meeting of this society, held in the society's rooms at the West London Hospital on March 5th, with Mr. Herbert Chambers, the President, in the chair, a discussion took place on Idiosyncrasy to Drugs.—Sir William Hale White, who opened the discussion, said that many idiosyncrasies were apparent, not real. Apparent idiosyncrasies were sometimes to be explained by impurities in the drugs; at other times they depended upon varying composition of the drug. The best instance of inconstant composition was ergot, which contained varying proportions of at least three powerfully active bodies—ergotoxin, tyramine, and histamine. The solanaceous plants were another instance, containing as they did varying proportions of alkaloids. Delayed excretion of a drug, causing its action to be cumulative, might cause a person to appear peculiarly susceptible to the drug, whereas, in truth, he was not. Examples were digitalis, lead, and opium. Again, the rate of absorption of a drug might explain some instances of idiosyncrasy. All were familiar with the profuse erythema which occasionally followed the administration of a soap enema; this was believed to be due to the soap leading to the solution of a fæcal toxin. It was, the speaker considered, highly likely that variations in the intestinal contents might be the explanation of some cases of idiosyncrasy; for a drug, if it was usually slowly absorbed and soluble in the intestinal contents only with difficulty, might, from abnormal alterations of the fluids of the intestine, become readily soluble and therefore quickly absorbed. Or, again, the drug might, in the intestine, become chemically changed, and the changed drug be more soluble and easily absorbed, or have a different action and be readily poisonous. Apparent idiosyncrasies might, again, be caused by disease; for example, many cases of uræmia were benefited by morphia, yet, very rarely, the drug appeared to be a fatal poison. We were often disappointed in the relief of cardiac pain by nitrites; this might be because cardiac pain had a varying pathological origin. Passing on to the genuine idiosyncrasies, Sir William Hale White said that no attempt could be made, in the present state of our knowledge, to state the cause in the majority of the most important examples. The most remarkable were the iodides: ½ gr. daily for two days had caused iodism; on the other hand, he had given 300 gr. a day without any symptoms of it. Sometimes when the dose is diminished they will pass away; again, doubling the dose might lead to their disappearance. Cutaneous idiosyncrasies were manifested when drugs were applied externally or internally. He knew a nurse who was unable to put her hands into perchloride of mercury or handle mercurial gauze without getting general signs of mercurial poisoning. The selective action of lead, arsenic, and alcohol on nerves was most remarkable, and the explanation would be found, he thought, by the biochemist. The speaker concluded by alluding to the well-known idiosyncrasies manifested towards iodoform, veronal, camphor, tobacco, and alcohol.—Sir Robert Armstrong-Jones called attention to the familial record of alcohol, and to individual susceptibilities displayed towards pollens, aspirin, and sulphonal.—Mr. Bishop Harman narrated some cases of peculiar susceptibility to cocaine. One patient had a sharp attack of mania when cocaine was applied to the eye. Mr. Harman had also had recent experience of a case in which zinc sulphate drops, a grain to the ounce, had caused dilatation of the pupil and disturbed vision apparently through the accommodation. There was no defect of the eye itself, and the drops used were subsequently found to be innocuous with six other patients.—Dr. Halls Dally, speaking from experience in studying the effects of iodides in several hundreds of cases of tuberculosis under treatment by the intensive iodine method, considered the liability of iodism lessened in doses from 10 gr. upwards, and that if any given dose above 10 gr. gave rise to idiosyncrasy the remedy was to double the dose.—Dr. Vaughan Pendred mentioned a case in which less than ½ gr. of morphia had caused death from typical morphia poisoning in a healthy man aged 38.—Mr. P. A. Hendley, Dr. Seymour Taylor, Mr. F. G. Lloyd, and Mr. R. W. Lloyd also took part in the debate.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

Irritable Heart Syndrome.

AT a meeting of this society, held on March 10th, papers on the irritable heart syndrome were read and discussed.—Dr. Carey Coombs, who dealt with the syndrome as seen in civil practice, gave an analysis of 50 cases. He said that in 90 per cent. there was no evidence of organic heart disease, and gave other reasons for regarding it as a nervous disturbance. About half the patients showed evidences of a temperamental predisposition. Physical effort was not a cause. Infections of various kinds, especially influenza, might be regarded as causal in 44 per cent. Distressing emotion of a protracted kind was apparently responsible for the onset of the symptoms in at least 36 cases.—Dr. C. E. K. Herapath outlined his experiences in a cardiac clinic of the Ministry of Pensions. Of his first 57 cases 9 were examples of various organic lesions: the rest were irritable heart cases. Among these 48 men there were 28 who dated their symptoms back to convalescence from some acute illness (influenza, trench fever, malaria, &c.). Of the remaining 20, there were 11 who ascribed the onset to some form of nervous disturbance. Dr. Herapath gave an account of his methods of investigation and treatment, laying particular stress on the value of optimistic "suggestion." He had, he said, already seen enough improvement take place to justify a further application of these principles.—Dr. A. G. Morris gave notes of cases of irritable heart in soldiers serving in this country, the condition developing without any infective or obvious cause, except anxiety as to the immediate future, which there was strong reason to regard as causal. He also described his experience on boards at an overseas base, which was to the same effect, that the "D.A.H." syndrome often sprang from pure "anxiety."—Dr. J. A. Birrell read notes of four cases of Severe Tachycardia following Influenza, in all of which the patients were under the influence of protracted anxieties at the time when the influenza attacked them. Analysis of this tachycardia had proved it to be of the supracardiac "nervous" type.—In the discussion which followed Dr. J. A. Nixon detailed experiences in France which led him to suspect infection of the heart itself as a cause of some of the tachycardias. He had seen post-mortem signs of early aortic syphilis, and also of an acute endocarditis of unknown origin in many men killed by wounding.—Dr. R. G. Gordon, on the other hand, supported the nervous theory. The kind of emotion that was most productive of this syndrome, he thought, was that expressed by the French "angoisse." He suggested that influenza allowed of the development of the syndrome with undue care, because of its action in diminishing higher-centre control of emotional expression.—Dr. D. A. Alexander suggested that functional disturbances set up organic disease.

WALSALL GENERAL HOSPITAL.—The fifty-sixth annual report of this institution, which covers the year 1919, shows that the annual income was £11,175, or an increase of £1428 on the previous year. The contributions of the workpeople of Walsall amounted to £2901. The expenditure was £14,768, and an appeal is made for greater public support. The number of in-patients treated during the year was 1282, and the out-patients 6971, with an attendance of 32,933. The number of operations on in-patients and out-patients respectively was 533 and 607.

Reviews and Notices of Books.

EXPERIMENTAL BACTERIOLOGY.

Die Experimentelle Bakteriologie und die Infektionskrankheiten, mit besonderer Berücksichtigung der Immunitätslehre. Ein Lehrbuch für Studierende, Aerzte, und Medizinalbeamte. By Dr. W. H. KOLLE, Direktor des Institutes für Experimentelle Therapie, Frankfurt a. Main; and Dr. H. HETSCH, Sanitätsdepartement des Kriegsministeriums in Berlin. Fifth edition. Abundantly illustrated. Berlin: Urban and Schwarzenberg. 1919. Vol. I., pp. 660, M.35; Vol. II., pp. 703, M.30.

THE present volume is an example of what can be done in the way of systematic exposition. It is impossible, however, to regard it as a text-book for English medical students, for its size would preclude its use by them. The physician and medical officer of health, the other two classes for whom the work is intended, are in a somewhat different case, but even they would probably use the book as a convenient and reliable work of reference rather than as a text-book. There is no doubt that for these the work is of considerable value, as it contains much information on the epidemiology and prophylaxis of infectious disease, and as to the relations which exist between laboratory investigations and the daily needs of the practising physician and health officer. The general plan followed is that common to most text-books; a little more than a third of the first volume is devoted to general considerations, and the rest to the characters and effects of individual organisms. The names of the authors are a sufficient guarantee that the work is well done.

The first part is the most distinctive. The authors devote themselves to questions relating to modes of infection and to the study of the various antibodies arising therefrom. The production of these antibodies, both in the laboratory and on a commercial scale, is fully set forth, and the use which is made of them in diagnosis and treatment is given in much detail. The book not being in any sense a laboratory manual the description of methods of demonstration and culture is relegated to an appendix. In the second part also the needs of the medical man and health officer are kept in view, and charts and maps are introduced for the better understanding of the epidemiology of the diseases treated. For these readers many of the excellent coloured plates will be of service, as they portray the clinical appearances as well as the pathology of the lesions.

Two editions have been produced since the commencement of the war, and a survey of the chapters on cholera, dysentery, and wound infection shows that much of the knowledge gained during this period has been incorporated, although in the case of gas œdema our own work seems to have gone farther than the German. The same is true with regard to the various spirochætoses which affected the armies in different parts of the world. In the use of vaccines for the preventive treatment of some of these diseases the Germans had greater opportunities than occurred on the western front, but on the whole there is a remarkable parallelism between the diseases common to the two armies, and in the researches made into their ætiology and methods of treatment or prevention. The results seem to have been very similar, and the chief difference lies in the names of the investigators to whom the advances in knowledge are attributed.

The book is well produced and is very well illustrated. The volumes sent for review are in paper covers.

PRACTICAL HINTS ON MINOR OPERATIONS.

By G. PERCIVAL MILLS. Birmingham: Cornish Bros., Ltd. 1920. Pp. 111. 5*s*.

"A PRACTICAL help for practical men, to enable them to do their minor surgery in a modern and efficient manner," is the aim of this little book of 111 pages. The author outlines concisely but clearly the treatment of inflammatory lesions, cutaneous tumours, minor deformities, foreign bodies in passages, hydrocele, varicocele, strangulated hernia, and retention of urine. There is also a useful chapter on local anæsthesia, and another on how to prepare for an aseptic operation in a private house.

A MANUAL OF MIDWIFERY.

Fifth edition. By THOMAS WATTS EDEN, M.D., C.M. Edin., F.R.C.P. Lond., F.R.C.S. Edin., Obstetric Physician and Lecturer on Midwifery and Gynæcology, Charing Cross Hospital, &c. London: J. and A. Churchill. 1919. With 5 plates and 369 illustrations in the text. Pp. 747. Price 24*s*.

IN the preparation of the fifth edition of this well-known text-book not much revision has been necessary. The sections dealing with the management of labour and the management of the infant have been re-written, and a considerable amount of new material in connexion with them has been added. The section on the management of labour is particularly good, and the author displays sound common-sense in his instructions to the student as to the methods he should adopt in the antiseptic treatment of these cases, more especially in regard to the advice he gives as to the occasions on which rubber gloves should be worn. The great importance of abdominal palpation is insisted upon, and these paragraphs are well illustrated. The section on p. 308 might be improved. The placenta cannot be said to fall into the cervix or the vagina. The level of the fundus really rises because the placenta passes into the lower uterine segment and ' the cervix, and so this portion of the uterus becomes enlarged and elongated as well as stretched transversely, which accounts for the suprapubic bulging of the belly wall. It is impossible for the placenta to be accommodated in the cervix alone, as the student might conclude from reading this section. The treatment of eclampsia is particularly fully dealt with, and the views of the two schools are well presented. We gather that the author, on the whole, favours the medical treatment of this condition as far as possible rather than the surgical, but he gives the arguments for and against the two methods sufficiently fully for the student to come to a conclusion on his own account. The administration of chloroform is now quite rightly condemned, and ether is recommended as the only general anæsthetic to be used. The section on the management of the infant is also good and clear, and full directions are given for the artificial feeding of the baby. In the treatment of constipation nothing is said of the great benefit of abdominal massage of the infant.

It is not necessary for us to say much of a book so well known as this, which has reached its fifth edition, and which is a universal favourite. The present edition has all the merits of its predecessors, and is well up to date.

ORGANIC CHEMISTRY.

By VICTOR VON RICHTER. Vol. I. Chemistry of the Aliphatic Series. Newly translated and revised from the German edition by PERCY E. SPIELMANN, Ph.D., B.Sc. Second (revised) edition. London: Kegan Paul, Trench, Trübner, and Co., Ltd. 1919. Pp. 720. 21*s*.

THIS well-known work is notable for its remarkable wealth of material. It may be consulted with the same confidence as a well-compiled dictionary, but, of course, the treatment of the subject is in proper group sequence. The volume is literally packed with the outstanding details in regard to the properties, preparation, and constitution of those substances included in the fatty series, while Volume II. of the work includes the chain or acyclic series. This new edition comes opportunely when the number of students of chemical science is rapidly increasing, attracted, no doubt, by the possibilities of wider applications of this field of study and research to industrial operations.

Principles and Practice of Physical Diagnosis.

By JOHN C. DA COSTA, jun., M.D., Ex-Associate Professor of Medicine, Jefferson Medical College, and Assistant Visiting Physician, Jefferson Hospital. Fourth edition. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 602. 20*s.*

THE object of this work is to present within reasonable compass the principles of physical diagnosis, and to apply this means of research to the study of thoracic and abdominal disease. That these objects have been achieved is proved by the fact that a fourth edition has been called for. We believe that the book will be found useful for students just entering on their clinical studies, for ample consideration is given to clinical anatomy and to the origin, mechanism, and meaning of normal physical signs; whilst those students further advanced in the study and practice of medicine will find interest and instruction in the manner in which the subjects of pathology and diagnosis are dealt with, especially in regard to the examination of the circulatory system. There is a clear account of the electrocardiograph, and the deductions are given which may be drawn from electrocardiograms in various lesions of the myocardium and of the cardiac valves.

Some interesting remarks will be found on the functional capacity of the heart and the means of determining the state of cardiac force and of observing the effects of failing compensation. This is of importance in giving a prognosis in cases of cardiac disease in life assurance work, and in judging the capability of men for active work, such as recruits for the army. In the section dealing with diseases of the broncho-pulmonary system will be found sound observations on influenzal-pneumonia and hilus tuberculosis. Another subject appearing in this edition is a description of the methods of estimating intradural pressure, as in the operation of lumbar puncture.

There is a large amount of valuable information in the book: the observations are practical, and presented in terms which can be easily understood.

The Nursery School.

By MARGARET MCMILLAN. London: J. M. Dent and Sons, Ltd. 1919. Pp. 356. 7*s.* 6*d.*

Nursery Schools.

(Bale's Medical Books and Journals). 1920. Pp. 106. 5*s.*

IN spite of the protest which Miss Margaret McMillan makes in her preface, the nursery school is still in an experimental stage. The Education Act, 1918, has given education authorities the power to open and maintain nursery schools, and the Board of Education has stated the general principles under which it considers nursery schools should be run. The problem of the nursery school, however, is essentially different from the problem of the elementary school—even of the infant's department—as this is now conducted. Nevertheless the principles which should govern the nursery school are fundamentally the principles which should govern all school education—the cultivation of individuality, the development of health, the realisation to the full of potential mental efficiency, the socialisation of the individual whereby the right balance is secured between the claims of the individual for self-expression and the claims of the group for social efficiency. While these principles have not yet been assimilated by the majority of schools for older children, the nursery school movement has already recognised them. Consequently, there is a much greater gap between the elementary school method and the nursery school method, as contemplated, than there ought to be, and than there will be in the future. The nursery school is still in the hands of the pioneers, and pioneers are few. Its organisation, its method, its equipment, its staffing, are still under discussion. Out of all the discussion and experiment the well-organised nursery school will ultimately evolve itself. In the meantime, we must be very grateful for books such as these. Miss Margaret McMillan gives, in attractive and very sympathetic style, her actual experience in evolving an open-air nursery school in one of the London slums. It is an inspiring volume, characterised chiefly by its insight into child nature and its deep sympathy with the family life of the poor.

Messrs. Bale's publication does not pretend to be a consecutive study of the problem of the nursery school. It is a series of chapters written by various authors, each of whom has his own special contribution to make. The introduction to this volume is useful in that it goes straight for some of the precautions which must be taken to ensure "that the nursery school is not condemned in advance by sinning against the first laws of hygiene."

Hygiene and Public Health.

Second edition. By GEORGE M. PRICE, M.D. Philadelphia and New York: Lea and Febiger. 1919. Pp. 280.

THE second edition of this small book has been thoroughly revised. It contains an epitome of the more important aspects of hygiene and public health. A series of questions on the subject-matter discussed in the preceding pages appears at the end of each chapter. The book is obviously intended for the use of students or nurses preparing for examinations, and should prove useful in this respect.

Handbook of Sanitary Law.

By B. BURNETT HAM, M.D., D.P.H. Eighth edition, edited by HENRY R. KENWOOD, C.M.G., M.B., F.R.S. Edin., D.P.H. London: H. K. Lewis and Co., Ltd. 1920. Pp. xxiv. + 216. 5*s.*

THIS small book has long been popular among candidates preparing for the Diploma of Public Health. It is difficult for the average medical man to acquire even a rudimentary knowledge of the various Public Health Acts and other sanitary statutes, but in this little manual the law relating to public health is arranged and condensed under various headings which facilitate reference and assist the memory. The book, which was first published in 1899, is now in its eighth edition, and it is only necessary to add that it has been edited and thoroughly revised by Professor Kenwood to ensure for it as great, or possibly an even greater, success in the future than it has enjoyed in the past.

My Chess Career.

By J. R. CAPABLANCA. London: G. Bell and Sons. 1920. Pp. 212. 7*s.* 6*d.* net.

THE recent victory of Capablanca in the Hastings Victory Tournament and his many successful simultaneous displays in this country makes this book of peculiar interest to chess-players at the present time. It is in the form of a short biography in two parts, illustrated by 35 selected games. Part I. shows the gradual evolution of the author's chess powers from his first victory at the age of 12 over the Cuban champion Corzo until he reached his full maturity as a chess-player at the Petrograd Tournament, 1914. "Hereafter," he says, "I may gain a little from experience ...... but whatever I may gain in one way I am sure will show a corresponding loss somewhere else." Part II. represents his period of full development and includes two games from the Hastings Tournament. The games gain immensely by being annotated by himself, though some readers may find his frankness too complacent. These notes are very clear; moreover, they tell the average reader exactly what he wants to know without confusing him with unnecessarily abstruse analysis. Particularly interesting are those which deal with the game with Janowski in the San Sebastian Tournament and a game with Marshall, for which the latter had prepared a special variation of the Ruy Lopez. It would, perhaps, have been still more interesting if he had included some of his rare defeats among the collection of games, notably the game won by Rubinstein at San Sebastian and the games against Lasker at Petrograd. The latter would have had a particular interest in view of the forthcoming match for the world's championship.

HANDBOOK OF TUBERCULOSIS SCHEMES.

Second edition. Issued by the National Association for the Prevention of Tuberculosis. London: Adlard and Son and West Newman, Ltd. 1919. Pp. 164. 5*s*.

THE purpose of this handbook, the first edition of which was published in 1916, is the provision of an index to the progress of the campaign against tuberculosis in the United Kingdom, with the further object of stimulating increased effort in its prosecution. It has now been brought up to date, and, moreover, includes a valuable alphabetical list of residential institutions, official and voluntary, for the indoor treatment of tuberculosis. The information given is conveniently arranged under the same pattern of parallel headings for counties in the first part of the handbook, and for boroughs in the second part. Comparison is thus made easy; moreover, the presence or absence of arrangements under each heading is definitely stated, or the fact that no information is available is indicated. The clear and useful nature of the handbook will be evident from the page which we here reproduce in full:—

Norfolk.

Area.—1,303,570 acres. *Population* (Civil).—281,616.

Character.—Rural.

Industries.—Chiefly Agriculture.

Deaths from Tuberculosis.—Pulmonary 337 } 421.
Non-pulmonary 84 }

Death-rate from Pulmonary Tuberculosis (per 100,000 civilians living).—119·7.

Tuberculosis Dispensaries.—Under consideration. Not yet opened.

Sanatorium.—Pulmonary: Kelling Sanatorium, Holt, 100 beds. Non-pulmonary: Norfolk and Norwich Hospital, Norwich; Jenny Lind Hospital, Norwich; Lord Mayor Treloar's Cripples' Hospital, Alton, Hants. Beds as required.

Farm Colony.—Graduated out-door work done at Kelling. B.R.C.S. have given £17,000 to start a Farm Colony.

Open-air School.—None. Most schools in county have open-air classes.

Hospital (advanced acute cases).—None. Patients taken at a few Poor-law Infirmaries, 8 beds.

Care Committees.—To be formed.

Medical Staff.—(*a*) Chief administrative officer: J. T. C. Nash, M.D., D.P.H., county medical officer. (*b*) Tuberculosis officers: Not yet appointed. F. W. Burton-Fanning, M.D., F.R.C.P., has been acting as consulting officer to the Insurance Committee.

The handbook forms a work of reference that will be appreciated by a wide circle of people interested in the problem of preventive medicine.

JOURNALS.

Journal of Pathology and Bacteriology. Vol. XXIII., No. 2. Pp. 129–240.—The Bacteriological Characteristics of Tubercle Bacilli from Different Kinds of Human Tuberculosis, by A. S. Griffith.[1] Serological Groupings of *Vibrion septique* and their Relation to the Production of Toxin, by Muriel Robertson. The various strains of this important pathogenic anaerobe can be classed into at least three groups by agglutination tests. Toxin is rapidly (24–48 hours) developed in liquid cultures of the correct reaction and antitoxic sera can be readily made. Antitoxin made with a single strain will neutralise the toxins from cultures belonging to each of the three agglutination groups.—An Inagglutinable Strain of Shiga's Dysentery Bacillus, by T. H. C. Benians. From a chronic inflammatary lesion produced in a guinea-pig by the inoculation of Shiga's bacillus the author isolated an organism identical in every way except that it would not agglutinate, absorb agglutinin, or act as an agglutinogen; but it threw off from time to time strains which were normal in these respects. Method of Determining Viscosities, Determination of Specific Gravity by the Viscometer, Method of Testing Temperature Sense, Methods of Anaerobic Culture, by J. Holker. Useful laboratory tips.—Streptococcal Ulcerative Endocarditis of the Aortic Valves in an Infant aged Six Months, by J. H. Dible.—The Classification of Forty-eight Strains of Flexner Y and Allied Bacilli Mainly by Serological Tests, by E. M. Berridge and E. E. Glynn. The groupings found correspond roughly with those determined in other inquiries; there is no correlation between serological and fermentative reactions in the subgroups.—Agglutination in Bacillary Dysentery, by J. W. McLeod and A. G. Ritchie. Freshly made emulsions of dysentery bacilli react more with the sera of infected persons and less with those of normal people than old emulsions, and hence are more useful in diagnosis.—The Synthesis of Tryptophane by Certain Bacteria and the Nature of the Indole Reaction, by W. J. Logie. Certain strains of *Bacillus coli* and *B. Friedländer* can grow in proteid-free media and synthesise tryptophane; this capacity to make a ring compound corresponds with their vegetable nature. Indole "formation," as ordinarily understood, is a consequence of a diminished use of indole as tryptophane rather than a special formation.—The Absorption of Dyes and Inorganic Salts by Solutions of Lecithin, by J. Cruickshank. Lecithin in ethereal solution extracts dyes and some salts from watery solutions; fats, fatty acids, soaps, and cholesterin do not act in the same way. The dye acquires the solubility of a lipoid while retaining its original colour.—The Gold Sol Test of the Spinal Fluid, by J. Cruickshank. Practically useful, but many experiments leave it still an empirical test.—Preliminary Observations on the Physics of the Wassermann Reaction, by J. Holker. The rate of development of turbidity on mixing inactivated serum with guinea-pig-heart-cholesterin antigen differs in normal and syphilitic sera.—Adenomyoma Involving the Ileum, by Clara Stewart. A tumour of apparently uterine origin.—Some Technical Points Relative to the Investigation of Variability among Bacteria, by A. E. Boycott.—The Killing of Tadpoles by Heat, by A. E. Boycott. The results are in accordance with a distribution of resistances on the normal curve.—A Case of Polycythæmia Rubra, by W. E. Hume and A. F. B. Shaw. A full anatomical and histological account of a fatal case of splenomegalic polycythæmia.

Edinburgh Medical Journal. Vol. XXIV., No. 3. Edinburgh: Oliver and Boyd. London: 33, Paternoster-row. Monthly, 3*s*.; annual subscription, 30*s*.—Since the New Year this valuable monthly journal has been appearing in a new garb. Among the four original articles in the issue for March is a paper by Mr. James M. Graham on Transfusion of Blood in Cases of Hæmorrhage, which is a distinct contribution to our knowledge of the type of case in which blood transfusion can be applied with advantage. Mr. Graham has proved by direct experiment on dogs the immense gain that is made by using blood instead of saline solution in cases of extreme exsanguination, and the experience of the war has provided ample evidence that the same principle is clinically applicable. The field for blood transfusion in civil practice remains yet to be explored, and Mr. Graham has made an interesting beginning with the 12 cases that he records. These include melæna neonatorum, hæmorrhage from gastric ulcer, hæmorrhage and shock following ruptured ectopic gestation, and several cases of secondary hæmorrhage following operation. As Mr. Graham points out, there is probably an exceedingly useful application for blood transfusion in cases of prolonged slow hæmorrhage from a gastric or duodenal ulcer, since it is becoming evident that the hæmorrhage tends to be arrested rather than encouraged by transfusion. Mr. Graham's records do not include a case of hæmophilia, but the effects, as he anticipates, would certainly be comparable to the very good result obtained by him in a case of melæna neonatorum. He has used transfusion in two cases of purpura hæmorrhagica, but is not yet willing to express an opinion on the value of the process in this disease. The same issue contains a clinical note by Dr. B. Soutar Simpson on a remarkable case of Diffuse Hypertrophy of the Breasts, and a critical review of a very searching character by Dr. J. S. Fraser on the Vestibular Apparatus.

IN the review of Bonney and Berkeley's "Guide to Gynæcology," which appeared on March 13th, the price of the work was given as 31*s*. We are asked to state that this book was published at 31*s*. 6*d*. net.

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[1] See THE LANCET, March 20th, p. 672.

THE LANCET.

LONDON: SATURDAY, MARCH 27, 1920.

The London Voluntary Hospitals.

It is notorious that the problems of London, in all matters of social administration and development, are different from those that present themselves in areas not so immense. Centres of population that are less artificially separated into widely differing sections of wealth, status, and occupation more readily conform to general schemes, and for that reason the position of London, in respect of the voluntary hospitals, cannot be regarded as typical of what may prevail elsewhere. But at a time when the pecuniary position of all these charitable institutions is the subject of the gravest anxiety, the circumstances in the metropolis have an interest for the whole country. A statement has been issued by King Edward's Hospital Fund for London on the present position of the London voluntary hospitals, setting out the nature of the problem which has to be faced to bring these institutions back to a level of solvency, and in this way showing that the impression of hopelessness, which might well have been derived from many of the public pronouncements on the situation, has not been warranted. Ominous the general position may be, but it is not desperate; and the message to be derived from an important document is that all precipitate meddling would be unfortunate and that the arousing of the public conscience is the first need.

The calculations of those responsible for the distribution of King Edward's Hospital Fund are necessarily based each year on the figures dealing with the previous year, but from the surplus, deficits, and debts thus shown it is possible to make a rough summary of the general position of any institution or of a whole group. At the beginning of the war it was anticipated that the voluntary hospitals would be faced with immediate financial difficulties from increased prices and decreased contributions; but the reverse occurred, and the crisis then expected has been postponed until now. The statement of the Fund shows that 1913 was a good year and 1914 a moderately good year, so that the money in hand from the period before the war could be used after the commencement of war, and could be eked out by a general postponement of building schemes. The next four years were all unpromising from a financial point of view for the London voluntary hospitals; 1915 was a distinctly bad year, while prices had now begun to rise in a threatening manner. But the hospitals were during this period obtaining War Office payments for the beds occupied by soldiers, so that it was not until 1918, when these payments ceased, while prices continued to rise, that the pinch began to be badly felt. In view of the results of 1913 and 1914, the King's Fund decided not to distribute money saved by the suspension of building schemes or received from large legacies or other exceptional windfalls, until it was known to what extent the hospitals would be affected and which hospitals would need help most. The amounts actually distributed, on this basis, were as follows: In 1913 the Fund distributed £157,500; in 1914, £140,000; in 1915, £140,000; in 1916, £170,000; in 1917, £190,000; in 1918, £200,000; in 1919, £230,000. The increased distribution in 1919 was due to the fact that the total was based, not only on the figures for 1918, the last year of the war, but also partly on the anticipated post-war needs of the hospitals, especially the necessity of carrying out deferred renewals and repairs. To effect this increase the Fund had to draw to the extent of about £46,000 on the reserves created during the war by exceptional legacies. The figures for 1919 are not yet complete, but the statement indicates that the year will end with a net deficiency of about £210,000 on a total annual expenditure of rather more than £2,100,000; that is to say, that with doubled general expenses, vast increases in the cost of therapeutic measures, and heavy additions to the numbers of beds, the voluntary hospitals were still able to meet out of their income for the year, including grants from the central funds, 90 per cent. of their bill.

Why, then, should voluntary hospitals not be continued as such, for a considerable period at any rate, if after the ordeal of the war the pecuniary position is so little worse than previously? These hospitals, the gift of those who have to those who have not, with a great past behind them, possess a future of beneficent work, if only they receive adequate support from all able to give. Those who give are rewarded by the consciousness of their good deeds, and those that receive—the hospital patients—know that the first qualification is their physical need of aid, and the second their poverty. Patients may slip in who would be excluded if an inquisitorial examination of their means were to be instituted; and this we are far from demanding, for the knowledge that details of private life will be minutely examined might deter many, genuinely qualified by poverty as well as by sickness, from applying to the voluntary hospital. The question would appear, therefore, to be whether an increase of institutional treatment, under State ægis, for patients qualified by insurance or by the payment of fees within their means, may not be possible side by side with charity for those who can make no contribution. Until we are reasonably certain that a better scheme has been devised to take its place the voluntary system must hold good, as far as London is concerned, supplemented, but not supplanted, by public funds. The voluntary side can be relieved of persons whose means render them better suited for treatment elsewhere, or the hospitals can be subsidised within limits without being deprived of their independence of control. The manual workman of the future, enjoying as a class higher wages than heretofore in proportion to the price of necessaries, may not be a fitting object of charitable aid; for the moment he is hardly in that position. In view of his contributions in bulk he may regard himself as paying his way to the full, but that is an error in arithmetic; while there will always be among us a proportion of our fellow-subjects for whom hospital treatment in times of severe injury or sickness will be in fact charitable aid. From the combined generosity of the prosperous citizen and the medical profession has emerged the voluntary hospital; if the partnership is to be dissolved by the enforced retirement of the citizen his partners cannot be expected to carry on as the only voluntary workers. This contingency, it appears, can be for the time avoided in the metropolis by an increase of rather more than 10 per cent. of subscriptions, which ought to be promptly forthcoming.

Gastric Ulcer and the Surgeon.

GASTRO-INTESTINAL affections are among the commonest of the ills which affect the community and anything which can be done to diminish them will be a great boon. Gastric surgery has barely come of age, but the last ten years have shown a rapid growth in appreciation of the character of the disorders for which surgical interference is in place. This is well seen in Mr. JAMES SHERREN'S Hunterian lecture, which appears in our present issue, and in the discussion on the Remote Effects of the Surgical Treatment of Gastric and Duodenal Ulcers at the Surgical Section of the Royal Society of Medicine, reported at length in THE LANCET of March 13th. Until comparatively recent times the only surgical treatment offered for an ulcer of the stomach or duodenum, which defied medical treatment, was gastro-enterostomy. This operation, after being praised to the skies, was found to give rise to many failures, and fell into disrepute. In the series of cases now reviewed by Mr. SHERREN the proportion of definite cures is high, and it will be instructive to inquire into the reasons for this advance.

The first improvement lies in the proper selection of cases for operation, inasmuch as bad results are due more to injudicious selection of cases than to errors of technique. Help in this direction comes from improved methods of diagnosis, in particular from the chemical analysis of the stomach contents, which we owe to the physiologist. More, we hope, remains to be learned from the chemistry of the secretions, and the trust is not misplaced that, with greater understanding, the evils we now labour to cure by operation may be prevented by medical and dietetic means. The second line of advance lies in improved technique, in order to avoid the ill-effects which were found to follow the operation of gastro-enterostomy in its early days—namely, regurgitant vomiting, peptic ulcer, and stricture. Mr. SHERREN rightly points out the value of a wait-and-see procedure; in any individual case the operation required can only be exactly determined after the abdomen is opened. Gastro-jejunostomy is still the operation of choice in the majority of cases, and this alone will bring about the permanent healing of ulcers which are not adherent. Ulcers which have perforated and become attached to the liver or pancreas do not heal completely after a simple short circuiting, and for these cases a partial gastrectomy is required. Mr. SHERREN tells us that the troublesome stricture of a gastro-jejunostomy opening is now known to be due to marginal ulceration following the use of unabsorbable suture material, and can be abolished by the substitution of catgut for silk or thread. The opening should be large, not less than 2½ by 3½ inches, and should be situated at the cardiac end of the pyloric segment of the stomach, immediately above the duodeno-jejunal flexure. This position has the effect of lowering acidity which along with chronic stasis is the chief cause of chronic ulcers. Secondary jejunal ulcer may be prevented by avoiding the use of a jejunal clamp, which bruises the mucous membrane of the jejunum, and by attention to after-treatment. Should the post-operative test-meal show a high acidity, dietetic treatment should be directed towards reducing it.

In taking stock of our knowledge of affections of the stomach and the methods of cure at our disposal, it is abundantly clear that we still have much to learn. Further, it appears that the problem is largely one for the chemist and physiologist. With them the surgeon should not fail to take counsel.

Military and Civil Hygiene.

THERE is something piquant attaching to the delivery of the Chadwick lectures by a Director-General of Army Medical Service, for the contrast is in this way brought out between the hygienic administration of the whole community and that of a disciplined service. CHADWICK'S long life was spent in the cause of civilian hygiene, and if there is anything more clear than another it is that the practice of hygiene in a civilian community cannot be imposed by edict of a Ministry of Health, even when such exists. The health of the civilian community can only be built up on the basis of individual enlightenment in regard to the principles and practice of personal and family hygiene, and it will be complete when the knowledge of the proper use of fire, air, earth, and water has covered the land. Sanitary authorities can, if they will, make it easy for this knowledge to be disseminated in practical and efficient channels. The civic life of the community and the public services run by it may be object-lessons for the individual citizens, but the ignorant, the prejudiced, and the selfish man will continue able to spoil the hygienic circumstances of his own life and those of his neighbours and relatives. Education is, as the late Sir Robert Morant saw with prophetic clearness, the chief and in the final issue the only effective instrument of civil hygiene.

Military hygiene, with aims and objects precisely similar, has a different discipline. The Army, as Sir John Goodwin puts it, is fortunate in possessing a disciplined populace and a perfected organisation which permits of action for the community as easily as for the individual. This is the strong position of military hygiene. Given the knowledge of what is to be attained, and how it may best be attained, there seems no limit to attainment, the instruction descending from the director-general to deputy after deputy until it is transmitted into action by the privates of the sanitary staff. For this reason, and Chadwick would have been the first to admit it, military hygiene has made progress vastly greater than civilian hygiene, as is abundantly clear from two very able summaries of Past and Present Hygiene given by Sir John Goodwin, of which abstracts have already appeared in our columns. The success achieved is of a very high order, the most striking figures, perhaps, being those of sickness and mortality-rates among European troops serving in India in the years 1878/82 and 1912 respectively, the death-rate at the later period being 1/20 of that at the earlier. There are some who hold that the results might be even better were the director-general of Army Medical Services made master in his own house and not subservient to an adjutant-general. It appears anomalous that a branch of the services which has shown marked improvement in modern warfare should not have a seat on the Army Council, and there was considerable force in Colonel Fremantle's presentation of this point in the House of Commons last Monday, in which he was ably supported by Captain Elliot.

Sir John Goodwin's last lecture, which we print in abstract this week, takes a dip into the future, and we may consider with him how the lessons of the army surgeon are to be used for the civilian community. It is no small achievement that military and civil hygiene should have been brought together, and evidently it is desirable for them to continue to work in harness. In billeting there is one hygienic problem with two aspects, for when a military guest is billeted on a civilian host, the army has to protect itself by cleaning up local infections among the general population. Perhaps the most urgent and timely hygienic lesson of the war is the efficacy of simple materials used in an intelligent way. The lives of regiments were saved by the use of empty tins which a local sanitary authority would have consigned to the refuse heap. Our civil authorities have to learn that as much can be achieved with simple materials —mixed, as Opie would have said, with brains—as by the use of complicated engines of hygiene. Small sanitary authorities, knowing nothing but their inability to afford costly apparatus, should be roused to action. They will now have at their disposal many discharged soldiers who have been members of the Army Sanitary Staff, and many more householders who have been drilled year-in year-out in the elements of hygiene by diligent regimental officers. This sometime thankless work should yet bear fruit in a healthy countryside.

Annotations.

"Ne quid nimis."

THE RE-EDUCATION OF MOVEMENT.

Few can have realised the difficult psychological problems involved in restoring perfect function to the man deprived by accident of the normal use of one or more of his limbs. In the discussion on the Re-education of the Amputated at the Medical Society of London on Monday evening last Mr. V. Warren Low, who presided, emphasised the rapid mental deterioration which he had long noted in civilian amputees who did not, at the earliest possible moment, resume their previous employment. At Roehampton, Mr. Muirhead Little stated in his instructive introductory address, 46 per cent. of military amputees were able after training to resume their civilian occupation, and another 21 per cent. to take up some active life. The remainder, an exact third of the whole, were referred back to their local pensions committees, and presumably mental deterioration was present in many of these. Jules Amar showed experimentally that 80 per cent. of disablement could be removed by the timely application of appropriate means. In the early years of the war re-education was largely a failure in this country, not on account of the badness of the material, but because the methods for dealing with it had not then been worked out. Soul-destroying mechanical movements were used to restore function, until it came to be realised that, as in primary education, it was essential to secure the interest of the pupil, and this implied purposive effort. Sir William Robertson, witnessing the performance of exercises designed to strengthen the climbing muscles, said, why not climb? And the principle has been successfully extended without limit. Mimicry is probably only part of the explanation. Sir Arthur Pearson found that the blind man was the best instructor for the blind; contrary to scripture, he did not lead him into the ditch. And now in the orthopædic centres mutilated instructors impart the principles of their own success to those similarly mutilated. The rôle of Captain R. Maxwell, chief arm instructor to the Ministry of Pensions, as a sort of mannequin for artificial arms—he can wear and use more than 20 varieties—has marked a further epoch in re-educative methods. The full report of this meeting will afford interesting reading.

SURGICAL APPROACH TO THE UPPER ABDOMEN.

Fear of opening the thorax and, in so doing, of upsetting the mechanism of respiration has prevented thoracic surgery from making the advances seen in the operative treatment of the peritoneal cavity and its contents. This fear was largely responsible for the policy of non-intervention in cases of gunshot wounds of the chest during the early years of the war. Prior to the war it was thought necessary, in order to open the pleural cavity without danger, to employ some form of pressure chamber to avoid the collapse of the lung. Pressure chambers are cumbrous and expensive. It was impossible to use them on any considerable scale in the field. But army surgeons, forced to operate without their aid, soon found, to their surprise and relief, that they could do so with safety. MM. A. Schwartz and J. Quénu, in an article[1] entitled Chirurgie de la Zone Frontière Thoraco-Abdominale, point out to their French colleagues that the pneumothorax produced by operation does not constitute a serious risk nor one which should deter surgeons from using the thoracic route when it offers the best access to their objective. Direct access to the structures immediately below the diaphragm is impeded not so much by the costal arches as by the potential pleural spaces which extend down between ribs and diaphragm. The risk of infecting the pleura should not be a deterrent, for precautions should be taken to prevent it occurring. Based on this essential principle, Schwartz and Quénu have planned trans-pleural and trans-diaphragmatic operations for exposing and dealing with diaphragmatic hernia, affections of the upper surface of the liver on the right side, and with the cardiac end of the stomach and the spleen on the left side. They make the claim that this route gives better exposure than can be obtained by the incision of an ordinary laparotomy. The article is suggestive and worthy of consideration.

SCIENTIFIC DIGESTS.

"IF the space occupied by a subject in German medical literature were any criterion of its importance, the partial antigens of the tubercle bacillus separated by the Deycke-Much method would claim considerable priority ...... no final judgment can be presented either on the theory or the practice of the Deycke-Much system until more confirmatory work has been done."

These lines, taken from *Medical Science* for March, give an inkling of the difficulties and tediousness of the task which the Medical Research Committee has set itself in publishing a monthly summary of current medical literature. Of the thousands of medical papers published annually only a fraction represents new and interesting work. Shortly before the outbreak of war Professor Penzoldt, that great clinician whose recent seventieth birthday celebration evoked sympathetic interest outside his fatherland, presiding at a medical congress at Wiesbaden, appealed to his colleagues to confine their publications to brief accounts of new and important matter. He was not particularly successful. Naturally, no one pleads guilty to the reckless tautology of a parrot; and it is but human to believe that, whatever tares others may sow, one's own products can be nothing but good seed. Hence the need for a sorting house, for a "Centralblatt," and still more for a sheaf of "Centralblätter," as *Medical Science* may well be described. As each section is edited by a specialist the digests gain in value by the running editorial commentaries with which several of them are punctuated. There is a natural tendency to deal with laboratory rather than purely clinical matter, and this is the less to be regretted as the *Medical Review*, under the able editorship of Dr. J. T. Conner, already supplies a monthly record of new clinical work quarried from many sources. Since the first appearance last October of *Medical Science* a valuable addition has been made of a section devoted to biochemistry under the editorial supervision of Dr. C. G. L. Wolf. All the sections show signs of fastidious discrimination, though there are wide differences in the handling of their material by the various editors. It would be invidious to distinguish between them; their team-work is all the more valuable for not being cramped by a rigid system. The two-line as well as the two-page abstract has its patrons, but we are glad to see that the two-word review has not found favour. It is wiser to ignore altogether publications of little or no value.

RUBBER BANDS AS A SUBSTITUTE FOR LIGATURES.

IN the *New York Medical Journal* of Jan. 17th Dr. A. L. Soresi has advocated the use of small rubber bands for hæmostasis instead of ligatures. His method is as follows. The nurse prepares artery forceps for use by slipping over them the rubber bands. The forceps are boiled, care being taken that they are not boiled so long as to impair the resiliency of the rubber. In operating the surgeon catches the blood-vessel or tissues in the usual way. He then slips the band over the blood-vessel or tissues by means of a thumb forceps; this avoids the use of the fingers and possible infection therefrom. With a little practice this operation can be done so rapidly that the surgeon will find it advantageous to remove the forceps immediately instead of at the end of the operation, and so to prevent any inconvenience caused by their presence. It is recommended that several bands be placed on each forceps. Dr. Soresi holds that rubber bands are preferable to ligatures except when the ligature may become the centre of a calculus, as in the bladder, whether the ligature is absorbable or not. He claims the following advantages. Rubber bands are safer than ligatures, because there is no danger of late hæmorrhage, due to the possible slipping of knots or the cutting of the tissues. There is no danger of hæmorrhage from an imperfect ligature, such as loose knots or the slipping of the ligature while it is being tied. The rubber band immediately and securely grasps the tissues. It does not cut the tissues, because its action is not due, like that of the ligature, to the tightness with which an inelastic thread is drawn, but to the resiliency of the rubber. It cannot slip when being applied, because the forceps cannot be removed easily until the band is beyond the tips of its blades which are holding the tissues. It does not slip afterwards because the tissues immediately assume the form of figure of eight, the groove in the "eight" being made by the compression of the tissues. Further, it produces a mild irritation of the compressed tissues, which helps in securing its stability. It can be applied much more rapidly than the ligature. Even when the point of hæmostasis is deep the band can easily be applied. It is better tolerated by the tissues than catgut, silk, or other material used in ligatures. The possibility inherent in all ligatures of the ends acting as setons is removed. As the band is never touched by the fingers after sterilisation this source of infection is abolished. Because of the gentler action of the band the tissues beyond preserve a certain vitality and are not condemned to rapid death and sloughing, as they are when the ligature is used. This is important in abdominal surgery, in which the dead tissues beyond the ligatures become the centre of adhesions. Moreover, the death of the tissues beyond the ligature facilitates infection. Rubber bands are much cheaper than ligatures.

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[1] Paris Médicale, Feb. 21st.

Such are Dr. Soresi's claims; up to the present he has used rubber bands only where largish blood-vessels were in question. His results he records as good.

STANDARD CONDENSED MILK.

THE appointment of an Interdepartmental Committee by the Ministry of Health to consider the question of a standard composition for condensed milk is of importance, since there is a large demand for this food product, and whatever else may be said about this process of preservation, at least it saves a large quantity of milk, appreciated by a considerable section of the community. Its high nutritive value cannot be disputed. The question of standardisation presents difficulty, as the composition of the original milk is variable, and the ultimate composition of the concentrated product obviously depends upon the length to which the condensation is carried. A guarantee could, of course, be founded on minimal limits in regard to percentages of constituents, and particularly fat, condensed milk being largely used for infant feeding. Correct dilution again depends upon the degree of concentration, and if a system of labelling be introduced the directions in this regard should be accurate. But a label setting forth an analysis of the contents of the tin would convey little meaning to the public and it is doubtful whether manufacturers could certify exactly the composition of every consignment they sent out. After all, the main thing is to secure that the consumer gets an article of the "nature, substance, and quality demanded," to quote Clause 6 of the Sale of Food and Drugs Act.

THE FATE OF THE FEEBLE-MINDED.

WITH the best intentions the various agencies concerned with the care of mentally defective persons continually get in each other's way and expend their energies in antagonistic efforts. Narrow views are taken because only one aspect of the matter is studied. Voluntary workers are impatient of the restrictions imposed by the Legislature; public officials of all grades forget that "the letter killeth"; judicial authorities hold divergent views about national policy and their functions in furthering it. Especially in regard to the need for interference with individual liberty is there discord. One body of public opinion considers it a matter for congratulation when for any reason attempts to obtain or maintain control of defectives break down, while another resists with all possible vigour any effort to remove such persons from institution care. In both cases the limitations of our knowledge are primarily responsible for the difficulty. Valuable information bearing upon the subject is to be found in a paper by Dr. Walter Fernald,[1] the widely known director of the Massachusetts School for the Feeble-Minded, who has recently collected particulars of the fate of the patients discharged from that institution during a period of 25 years. Of 1537 persons discharged he has been able to follow up the history of 646. Stated summarily, his results show that of 470 males 250, however profitless they might be to the community, did not in fact constitute any serious menace to it. Of the remainder 54 had died, 68 had been readmitted to Waverley, 23 had been arrested for crimes or misdemeanours, and 75 had been committed to various institutions. 176 female patients were traced, of whom 24 had died, 33 had been readmitted to Waverley, and 29 had been committed to other institutions. 52 of the remaining 90 "are apparently giving no trouble," and of these 11 are married and are "living useful and blameless lives," while 8 unmarried women are "self-supporting and self-controlling." Naturally the patients who are doing satisfactorily are those presenting the slighter degrees of mental defect. These results should, as Dr. Fernald says, "be interpreted with great caution," but they suggest that the beneficial effects of institution care may be more permanent than some experienced workers among the mentally defective have supposed likely.

THE WHEREABOUTS OF ENTERIC CARRIERS.

ENTERIC fever is now an exceptional disease in London and most county boroughs. It still prevails in many of the smaller sanitary areas, and in 1917 caused 977 deaths. The two chief endemic sources are shell-fish and carrier cases, and the latter are probably the source of most of the outbreaks that now occur. In the *Medical Officer* for Feb. 7th Dr. E. Lewis-Lloyd, medical officer of health of Merionethshire, reports an outbreak comprising 23 cases occurring at Towyn from 1909–1918. Water-supply, sanitation, and other possible causes having been excluded, the source was finally traced to milk provided by one farm. Although local regulations required the cleansing of the cows' teats and udders and the hands of milkers, it was found that both these practices were habitually neglected. The four milkers were examined by the Widal test and two gave a positive reaction, although neither was known to have suffered from enteric fever. The fæces and urine of the two positive cases were then examined for typhoid bacilli and these were found in one case, who was thus shown to be the innocent cause of the outbreak. We are assured that steps have been taken to prevent further danger from this source, and it is to be hoped that these include such provision as will make it improbable that the infected milker will ever again be engaged in the production of human food. Such persons require to be treated as suspects for life, or until, at least, three successive bacteriological examinations at prolonged intervals have shown their freedom from infection. That is the present rather hopeless position in regard to carriers, although work such as that of Dr. J. W. Brownlie on diphtheria convalescents, given on p. 706 of this issue, affords at least a prospect of radical cure. As most health departments do not possess a staff adequate for supervising the movements of suspected persons, it seems desirable that the police should undertake this duty and report any change of address to the medical officer of health. An instance occurred not long ago in an eastern county where a carrier, whose dangerous propensities had just been established by an enterprising medical officer of health, forsook the neighbourhood, leaving no address. But although hygienically criminal the carrier deserves every consideration for what, after all, is morally an innocent failing. Should there be any question of difficulty in obtaining suitable work, he should certainly be allowed sufficient pecuniary assistance to make it unnecessary for him to return to his former occupation. The Ministry of Health might well keep a record of all carrier cases and require a yearly report on the condition and occupation of each.

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[1] After-care Study of the Patients Discharged from Waverley for a Period of 25 Years. By Walter E. Fernald, M.D. Ungraded. Vol. v., No. 2, November, 1919.

THE CHEMOTHERAPY OF THE PHENOLOLIPOIDS.

THE search for substances which, like therapeutic serums, have a specific elective action in infective diseases has given rise to the important branch of chemotherapy in the field of experimental therapeutics with its successful results in protozoal diseases. Similar trials have been made in certain bacterial diseases for which a definite immunotherapy is not yet discovered. Chemotherapy, however, has an original defect in its application to bacterial diseases in general, for such substances besides being parasitotropic are also organotropic, and only those could be used as drugs which possess these two properties in due proportion. Hence it is necessary to find substances which are feeble in organotropism and strong in parasitotropism, and which, moreover, have the possibility of counteracting the effects of the toxæmia caused by the infection itself; in other words, they should be antibacteric and antitoxic at the same time, like the therapeutic serums. This problem has stimulated the experiments of Dr. Cesare Piazza, of Palermo, who publishes his results in a recent number of the *Annali di Clinica Medica*.[1] He turned his attention, on the one hand, to phenol, well known for its parasitotropic and organotropic action, and, on the other, to the various normal lipoid constituents of the living organism, the antitoxic action of which has been established by numerous researches. On these lines he endeavoured to obtain combination products uniting these two properties, which should be capable of causing, directly or indirectly, the death of the bacterium, of neutralising its toxins, and at the same time of being innocuous to the infected organism. Compounds were thus obtained with phenol and various lipoids, such as yolk of egg, cerebral substance, cholesterine, and lecithin, with camphor as the connecting link. These substances presented several common characteristics; they were nearly all semi-fluid in consistency and soluble in ether, benzol, chloroform, olive and essential oils. They were nearly all soluble in chloroform in proportion of 1 in 20, and when the solution was brought into contact with concentrated sulphuric acid gave rise to a green coloration passing into red. The particular substance, which presented a constant chemical composition, complete stability, and definite physico-chemical properties, was named by Dr. Piazza phenololipoid H, and was formed by the union of phenol with cholesterine and camphor. It is homogeneous, of pasty consistence, and whitish colour, melting at 70° C., solidifying at 15° C., and having a camphoraceous odour; it is insoluble in alcohol, acetone, glycerine, caustic alkalies, mineral acids, and water. Intravenous injections were toxic to guinea-pigs in doses of 1·5 cg. per 100 g. body weight, but subcutaneously it could be injected freely without disturbance even up to 15 cg. per 100 g. The antitoxic action of phenololipoid H was investigated on tetanus, diphtheria, and typhoid toxins, by bringing them into contact for varying periods of time and in special conditions. In the same way its action on emulsions of typhoid, dysenteric (Shiga), pneumococcal, streptococcal, and coli bacilli was tested. The results of these experiments proved that the phenololipoid H united in itself the parasitotropic action of phenol and the antitoxic action of cholesterine, the former being shown by the inhibition of bacterial development after a given period of contact, the latter by the neutralisation of the toxins of tetanus, typhoid, and diphtheria. It was, however, free from the organotropic action of phenol, having no local caustic or anæsthetic properties, nor had it any action on the red blood corpuscles or muscular fibres, and, in fact, realised the precise requirements of a chemotherapic agent, both antibacteric and antitoxic. Dr. Piazza's communication is in the nature of a preliminary note, and we await with interest further developments.

COMPLIMENTARY DINNER TO SIR JOHN MACALISTER.

THE complimentary dinner given to Sir John MacAlister by the Royal Society of Medicine on March 18th proved a very successful function from the only point of view that mattered—that is to say, that the acknowledgment of the profession of the services rendered by their guest to the cause of medicine was as sincere as it was imposing. Moreover, it was not to the recent knight that the compliment was being paid, but to the Secretary of the Society since 1887, through whose labours it was mainly brought about that the Royal Medical and Chirurgical Society had developed into the Royal Society of Medicine. The gathering at dinner was large and representative, and three of the speeches set out the history of the Society and its transformation, though all had "Our Guest" as their common theme. After a brief tribute from Sir Humphry Rolleston, chairman of the dinner, to MacAlister's qualities, Sir William Church spoke for the Berners-street period, and mentioned that their would have been no Hanover-square period had it not been for MacAlister's energy. Sir Rickman Godlee spoke for the Hanover-square period, and alluded to the skill of the secretary of the Society in husbanding the resources; and Sir Francis Champneys described the activities of the Society upon its arrival in its present home in Wimpole-street. To Sir Arbuthnot Lane fell the more genial task of introducing "the man" rather than his secretarial exploits to the company, but he also pointed out the great things pecuniarily that MacAlister had done for the Royal Society of Medicine. The health of Sir John MacAlister, with which was coupled the health of his wife, was then drunk with acclamation. In a quiet eloquent reply, Sir John MacAlister reviewed the parts played by the recent officers of the Society in erecting it into prosperity. The occasion was a notable one both for the quality of the gathering and the sincerity of the tributes paid to Sir John MacAlister as official and as friend.

EXPERIMENTAL TYPHOID.

ALTHOUGH the ætiological relationship of *B. typhosus* to typhoid fever has long been established beyond all reasonable doubt, the fact remains that the comparative failure to transfer the disease to animals has always required a more or less roundabout explanation. The habit of explaining things away has been described as "a running sore of the mind," and we are all the more pleased therefore that we are no longer compelled to indulge in this common, though repugnant, habit, in speaking of the typhoid bacillus and the fever to which it gives rise. Recent work[1] of Besredka has thrown a clear light on problems which have hitherto been wrapt in obscurity. Besredka's study of infection may be briefly summarised as follows. The rabbit has been found to be the most sensitive of the common laboratory animals to the typhoid bacillus and the poison it secretes. The effects produced depend upon the virulence of the organism and upon the route by which the organism is administered. Strains of *B. typhosus* which have been maintained for many generations in culture on artificial media are apt to lose some of their pathogenic power, and the results obtained by inoculation therefore vary considerably. With a very virulent strain injection directly into a vein may be followed by death within 24 hours. With ordinary laboratory cultures an illness of variable intensity is usually obtained. Post-mortem examination of animals thus treated shows that the bacilli are almost completely confined to the biliary tract and the upper reaches of the small intestine. Subcutaneous inoculation is less harmful than intravenous, and administration by the mouth is entirely innocuous. A rabbit may be fed with enormous numbers of typhoid bacilli, and beyond the production of agglutinins in the rabbit, no effects are noticed. Besredka has shown, however, that the simple expedient of giving a rabbit a few cubic centimetres of ox-bile some hours before feeding it with typhoid bacilli renders the animal sensitive. An acute illness follows in from one to four days, accompanied by diarrhœa, loss of weight, and profound prostration. The animal dies in from 3 to 15 days. The part played by the bile appears to be somewhat complicated. Acting as a cholagogue it stimulates the secretion of bile which flushes the small intestine clean. The excess of bile ruptures the integrity of the mucous membrane of the small intestine and thus provides the bacilli which are swallowed later with an opportunity of gaining an entrance into the blood stream. Further, the presence of bile in quantity no doubt assists the rapid multiplication of the invading bacilli.

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[1] Annali di Clinica Medica, 1919, Anno viii.-ix., Fasc. iv., via Principe Belmonte 71, Palermo.

THE MEDICAL SCHOOLS OF SOUTH AFRICA.

THE publication in the *Medical Journal of South Africa* of the plans for the Medical School in Johannesburg, now under construction, recalls a curious omission. The Medical Act of 1886, Part II., contains regulations for the inclusion in the Medical Register of the names of certain colonial and foreign practitioners holding diplomas recognised by the General Medical Council. The power of defining the countries to which this part of the Act shall apply belongs to the King in Council, and a fresh Order in Council is necessary before the Act shall be deemed applicable to any country other than those named in the tables appended thereto. The foreign lands at present scheduled are Italy, Japan, and Belgium—reciprocal facilities being given—and the British possessions are Australia, Canada, Ceylon, Hong-Kong, India, Malta, Newfoundland, New Zealand, and the Straits Settlements. The absence of South Africa from such a representative list has caused comment in the past in view of the large University at Capetown. Now that the attached medical school and a new school at Johannesburg are being organised, equipped, and staffed on modern lines to supply the whole course of medical studies, application is doubtless being made in the proper quarter for an Order in Council as a preliminary step to the recognition by the General Medical Council of the degrees conferred. Another anomaly that calls for adjustment on somewhat parallel lines is the refusal of the University of London, unlike Edinburgh and Dutch universities, to recognise the Cape matriculation as exempting from the London matriculation. This is one of the minor grievances of the native born and educated South African, and resented so keenly that by way of reprisal the South African School of Mines and Technology (University of South Africa) has hitherto denied admission for the diploma course to students who have only matriculated in England. The attitude of the University of London is doubtless based on the lower standard required for the Cape matriculation, but this difficulty would appear capable of solution by negotiations for a levelling-up of the standard or by recognition of passes in the first class only. In the present state of unrest in South Africa—evident from the recent elections—the desirability of avoiding any unnecessary sense of irritation with the home country and of forging further links of unity cannot be overstated.

THE ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND.

A PROVISIONAL programme has now been drawn up for the first annual meeting of this association, which will take place in London in May under the presidency of Sir John Bland-Sutton. An address will be delivered on the first evening, Thursday, May 13th, by the President. On Friday a discussion will be held at the Royal College of Surgeons of England in the morning on the Ritual of the Surgical Operation. The afternoons of Friday and Saturday will be employed in seeing operations and selected cases at the various London hospitals. On Saturday morning at the College there will be three short addresses: by Professor Arthur Keith on the History of the War Collection; by Sir George Makins on Selected Specimens of Wounds of Vessels; and by Sir Cuthbert Wallace on Gunshot Injuries of the Abdomen. The specimens in the war museum of the Royal College of Surgeons will be on exhibition.

THE Middlesex Hospital desire it to be known that the course of instruction for the D.P.H. advertised in THE LANCET of last week, p. 41, with the heading "University of London," should have been headed "The Middlesex Hospital Medical School (University of London)."

AN Order in Council, dated March 11th, sets up the Medical Research Council, to incorporate by charter the present members of the Medical Research Committee. Section 3 of the Ministry of Health Act, 1919, enacted that the duties heretofore performed by the Committee should, after the date of the commencement of the Act—namely, April 1st, 1920—be carried on under the direction of a special committee of the Privy Council. The Lord President of the Council, the Minister of Health, the Secretary for Scotland, and the Chief Secretary for Ireland, for the time being, constitute this special committee, the Minister of Health to preside in the absence of the Lord President, and the secretary of the Medical Research Council to act as its secretary.

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[1] Bull. de l'Inst. Pasteur, xviii., No. 4, Feb. 29th, 1920, p. 121.

SIR ROBERT MORANT:

AN APPRECIATION BY DR. ADDISON.

Sir Robert Morant was more than a great public servant. He was a great patriot, a man of tireless self-sacrifice and deep enthusiasm. He was perhaps better known than many leading civil servants, but, in common with them, the full variety and the greatness of his work could only be fully known to those who worked with him.

My first close personal association with him was during the fierce political controversies which arose over the introduction of the National Health Insurance Act. He grasped at once the immensity of the task and the character and the extent of the organisation necessary to cope with the enormous mass of detail involved. Often in the struggle against time, as the day drew near for bringing the different services into operation, he would say, in his nervous, masterly way, that this or that could not be done. Yet it was done. It was done, because a man was in charge who had an indomitable spirit, an infectious energy, and a singular capacity for gathering around him a team of younger men whose standard was efficiency. He tolerated no inefficiency and was impatient of failure to act according to principles laid down. At the same time he was peculiarly sympathetic, often tender, to lowly members of his staff, and I have never known him fail to spare others rather than spare himself. Had his consuming conscientious energy been less active, he might perhaps be with us still.

Many a time in those days we tried to forecast the order of development and the nature of a system of organised health services which the nation so sorely needed. None was more conscious than he was of the difficulties in the way and of the time that would be required in overcoming them. Yet he was not dismayed when he realised that it would be necessary to deal with a medley of interests and authorities, an antiquated and cumbrous system of the Poor-law, a lack of trained personnel in all directions, a mass of vehement, deep-rooted prejudices, and, above all, with the common habit of thought that national health services were solely associated with physic and doctoring. He loved to talk of these things and longed to have a hand in the working. Often enough he would speak despairingly when he thought of the vicissitudes of political life, of the slowness of things, and of the lack and accidents of opportunity. When he fretted thus it was only because his eager spirit was anxious to be at work.

Among the many facts which the war made manifest was the urgent need of an organised system of health services, and I believe that he achieved one of the chief ambitions of his life on the day when it was my high privilege to ask him to become the first secretary of the first Ministry of Health. He saw before him an opportunity for years of useful work in the things he loved, and as a great practical idealist he rejoiced in the prospect. He never got lost in the thicket of details, of arrangements, rearrangements, adjustments, conferences, discussions, delays, and difficulties which attend the development of a progressive policy. All the time he knew where he was going, and his smallest actions were purposeful and designed to help things forward. He had the priceless gift of a wide view whilst retaining command over near and detailed work.

The tragedy of his loss would appal us all were it not for the unforgettable example of his dauntless courage. Those who really knew him loved him even for his foibles. There was nothing petty about him. When a course of action had been decided upon, he pursued it; the doubts and questionings that had preceded its decision having been carefully examined and estimated were cast behind him; whether he agreed in all respects or not he went straight on when the course was decided, and that annoying habit of lesser men of bringing up again and again all sorts of pointless questionings was never his. A great reasoner himself, he respected reasoning in others, and his masterful manner did not arise from any love of domination for its own sake, but from what he felt to be the necessities of the case. He was ready enough to subordinate himself and modify his views, and he looked for a similar practice in others. The cause was the only thing that mattered to him.

He was an inspirer of others, a magnificent chief of staff, greedy for labour in a worthy cause, a despiser of trifles and an affectionate and loyal friend, a tower of strength to whatever he supported, a devoted and splendid citizen. We are made poorer as a people by his loss. We are shocked by the tragedy of his death at the moment when he seemed to have the fullness of his power and opportunity. In our sorrow we can but reverence his memory and pay the tribute that he would value most in striving with all our might to imitate his great example. C. ADDISON.

THE PHYSICAL CENSUS.

I.

BEFORE detailing the outstanding results of the physical census conducted in 1917–18 and recorded in the Report of the Ministry of National Service, it is necessary to indicate the notation employed. All doubtless are familiar with the categories of the Army Medical Board.

> "A," men physically fit for active service at the front.
>
> "B," men able to undergo a considerable degree of physical exertion and with fair hearing and vision, but in consequence of partial disabilities unable to stand severe strain; fit for any form of service overseas but not for active service at the front.
>
> "C," men who in consequence of physical disabilities cannot undertake marching but can be employed for less arduous and more sedentary occupations.
>
> "D," the rejected, unfit for any form of military service.

We owe to Professor Arthur Keith the translation of these categories into Groups I. to IV., which is a more scientific subdivision of the material in the terms of the polygon of frequency. Professor Keith worked on the assumption that physical fitness—the quality which separates men into grades—would be distributed amongst recruits exactly as are certain qualities capable of exact measurement, such as stature. Of a thousand Cambridge students measured for stature, those measuring 5 ft. 9 in. formed the largest group. Those measuring more and less than this tailed off inch by inch on either side of this mean with striking symmetry. Applying this method to general physical efficiency, he lays down that in a normal population measured for height, weight, and chest girth 70 per cent. should be included in Grade I., which is constituted of the mean or largest class, and also comprises all above the mean and the class just below the mean; 20 per cent. should constitute Grade II. (corresponding to the "B" men); 7·5 per cent. Grade III. (the "C" men); and 2·5 per cent. Grade IV. men, or rejects. Thus, from a military point of view, each 1000 men of the adult population should provide—

700 (seven companies) of Grade I.
200 (two companies) of Grade II.
75 (seven and a half platoons) of Grade III.
25 (two and a half platoons) of Grade IV.

This we may speak of as Keith's "index of efficiency." Giving each man of Grade I. the value = 1, and the men of the other grades a value equal to 0·75, 0·5, and 0·25 respectively, the total value of 1000 men of the normal population should sum up to 893·75 units of fitness. He therefore speaks of 89·3 as "the index of fitness."

The main results received may be thus reviewed:

1. During the year 2,425,164 men presented themselves for examination and re-examination (these latter comparatively few in number, so that they do not materially influence the results).

2. Instead of there being found 700 Grade I. men per 1000 there were found only 359; instead of 75 Grade III. men there were 312 ("C" men) and 104

Grade IV. men in place of a normal 25. Or taking the actual number of examinations during the year:—

—	I.	II.	III.	IV.
Actual number placed in each grade	871,769	546,276	*756,859*	*250,280*
Number anticipated from normal population by Keith's standard	*1,697,595*	485,040	181,902	60,647
—	– 825,826	+ 61,236	+ 574,957	+ 189,633

Or, roughly, out of 2½ million men there was a shortage of 825,000 men fit for active service, and the alarming excess of no less than 575,000, or more than half a million C men and 190,000 D men.

3. The incidence of this deficiency of Grade I. men and excess of Grade III. men varied greatly in the different regions, and particularly in the different regions when account was taken of the predominant occupations. The London and South-East district yielded only 28·2 per cent. A men (in place of 70), Scotland yielded 44·2, and Wales 46 per cent. The best returns came from Wales, the worst from London and the South-East region. There was a difference of almost 10 per cent. in the index of fitness of these two regions.

Certain localised districts gave figures well above Keith's standard. The subjoined table, giving the results of the medical examination of different groups of men aged between 18 and 25 in Yorkshire, indicates very significantly the direct relation which exists between occupations and physical condition:—

Occupation.	% Grade I.	% Grade III.
Agriculturists (1st group)	74·8	9·4
Miners (,,) ...	76·4	11·4
Keith's standard	70·0	7·5
Agriculturists (2nd group)	71·9	8·8
Miners (,,)	68·9	10·5
Agriculturists	62·0	11·6
Engineers	60·9	13·4
Iron and steel workers	60·2	11·2
Lace workers	45·0	22·7
Woollen trade	54·6	24·0
Woollen trade (2nd group)... ...	37·5	27·0
Tailors	33·9	33·5

It will be observed that (coal) miners and agriculturists show far and away the best grading results, and that among them Keith's standard may be exceeded. Mining and agriculture are both industries which were highly protected against recruitment, and the men who were ultimately combed out in 1918 may be regarded as typical of their class from a physical standpoint. At the other extremity of the scale come the workers in cotton and woollen mills; 290 cotton operators examined by the Stockport board in April, 1918, yielded only 19·6 per cent. of Grade I. men, and had an index of fitness of 57·9 in place of 83·9. In the same month 5001 men examined at Leeds gave 40·5 per cent. Grade I. men, and 31·1 per cent. Grade III., while 8919 men at Sheffield gave 66 and 13·6 per cent. respectively. Or taking the combined results of January, April, and June, out of 1000 men, Sheffield yielded a battalion made up of six companies, Leeds one made up of only 2·85 companies. Even Sheffield is a company short of the normal. It is difficult to arrive at any other conclusion than that either the woollen industries of Leeds attract men of painfully low physique, or that the result of working, under the conditions present in the woollen mills, is to bring about a rapid, not to say appalling, deterioration in the physical condition of the operatives. The Commissioner of the region attributes these results in Leeds to the following factors: (*a*) the large number of back-to-back houses; (*b*) the very large alien population engaged in tailoring at home under very bad sanitary conditions; (*c*) the large number of women employed in clothing and other factories, this circumstance tending to favour the incidence of rickets in their children with lowered physical condition later in life; and (*d*) the frequency of infantile paralysis. The industrial population of Sheffield is almost entirely employed in the iron and steel industries, work requiring men of good physique, and there female labour is at a minimum.

The qualities of the information afforded by the report in these directions are thus indicated; full returns are promised with tables for the whole country. But the value of the figures, and the weight that may safely be given to them, can be estimated, as will be shown.

MEDICINE AND THE LAW.

The Law Relating to Coroners.

THE Home Office is engaged in working out the details of the long-promised Bill to amend the law relating to coroners and the holding of inquests. It is more than 30 years since the last important Act amending and consolidating the law relating to coroners was passed. Ten years ago the committee presided over by Sir Mackenzie Chalmers expressed in its report its astonishment at "the good work done by coroners with out-of-date and imperfect machinery." The committee went on to make many suggestions for improving the provisions of the Act of 1887, most of which await the consideration of the Legislature. It recommended the prescribing of a professional qualification for coroners, the majority of whom at that time were found to be solicitors, some barristers, and a good many medical men. Others, however, had no professional qualifications. It dealt with remuneration and expressed itself in favour of fixed salaries and as adverse to the income of the coroner being dependent upon the number of inquests held by him. It dealt also with the desirability of an age-limit, and of pensions on retirement, and recommended that the coroner should be ex officio a justice of the peace. The authority to order a post-mortem examination, otherwise than as part of an inquest, was one of the most important powers that the committee advised should be given to coroners, and one with which coroners, and especially medical coroners, had long asked to be invested.

The committee also was of the opinion that for the procedure of the coroners' court a rule-making authority should be constituted to replace the limited powers of the Lord Chancellor to prescribe forms under section 18 of the Coroners Act, 1887. Some of its recommendations affected the making up of jury lists and other questions relating to juries. No doubt the present power to dispense with juries, due to the exigencies of war, will have afforded useful experience, by which those responsible for the coming Bill will have profited. The viewing of the body will be another point which presumably will have received consideration. The question of the selection of medical witnesses, and that of their remuneration, will require adjustment in terms of the present cost of living. The recommendations of the committee will, no doubt, be carefully weighed. Ten years constitute a long interval between the obtaining of advice in a matter of public interest and the carrying of it into effect.

The Detention as Lunatics of Ex-Service Men.

A question was asked recently by Colonel Wedgwood in the House of Commons as to how many persons are being detained in public or private lunatic asylums, and as to the number of these who are ex-Service men, voluntary boarders, or temporarily detained respectively. The answer given by the Under Secretary for Home Affairs, replying for the Minister of Health, referred to England and Wales, the total number of patients given being 96,344 (males 42,294, females 4050), of whom 3739 are ex-Service men classified as such and a few are ex-Service men not so sanctioned by the Ministry of Pensions or whose sanction is pending. The voluntary boarders in private asylums are 270 (males 108, females 162), none being temporarily detained. From these figures no inference can, of course, legitimately be drawn as to whether any increase of insanity or degeneracy has taken place recently. Progress in the study of mental unsoundness is likely to lead to an increase in the number of persons treated in institutions. There are, however, obviously no statistics available as to the number of persons to whom such treatment might be beneficial, and Sir H. Brittain's question whether "we have any statistics showing how many persons are at large who ought to be in asylums" remains unanswerable. The honourable Member might have had difficulty in assigning a meaning to the word "ought" in such a connexion. On the same occasion Lieutenant-Commander Kenworthy asked whether it would be possible to concentrate the ex-Service men in one or two establishments and give them special treatment. Major Baird intimated that he would not reply to this question without notice. An answer might, however, have been given that such a course would be possible if any advantage could be proved to be obtainable by such a course sufficient to render it worth while. Special institutions for ex-Service men might or might not be more agreeable to them and to their relatives. Those mentally unable to realise their surroundings would not be affected, while the convalescent might prefer to be nearer their homes. Relatives of both classes would wish to visit them without having to travel to a distance in order to do so. There would then remain the further question whether men suffering from similar causes connected with their hardships and experiences in the war would benefit by being congregated together. That is a question with a quite important medical side.

Medical Grounds for Refusal to Marry.

Mr. Justice Darling, sitting without a jury, recently awarded one farthing as damages in an action for breach of promise of marriage, and refused to order the payment of costs by the defendant. The case was of interest owing to the defendant admitting a promise to marry made before 1914, and at the same time denying the allegation of the plaintiff that he had made a promise in August, 1918, to marry her, and pleading that owing to injuries received in France he had become physically and mentally unfit for marriage and its obligations. This he had realised in the autumn of 1918, when he had informed the plaintiff of his condition. Medical evidence was given in support of his decision, and was to the effect that at that time marriage, and even the excitement of the ceremony, would have been injurious to him. Mr. Justice Darling, after reviewing the evidence, expressed the opinion that in the interests of both parties the conclusion arrived at by the defendant was a very reasonable one. Many might regard marriage as a mere trifle, and bigamy as only a little more serious, but, in his lordship's view, marriage, still nominally a contract for the life of both parties, was a very serious undertaking. This it would remain, however the law might be altered, for the reason that it generally resulted in the birth of children. The marriage under discussion might have resulted in the birth of children who would have been a burden to the State. This was to be gathered from the medical evidence, and if the plaintiff had married the defendant her life might have been one of misery. His lordship expressed himself in accord with the views propounded by Lord Bramwell in a dissentient judgment in the Court of Exchequer Chamber, in the case of Hall *v.* Wright (El. & E. 746). Lord Bramwell there said that it was implied in the marriage contract that the man or woman should be able to carry it out without danger to life and without danger of producing idiots or children of that type. The Court of Exchequer Chamber declined to adopt that view, and held that such a term was not implied in the marriage contract, but Mr. Justice Darling believed Lord Bramwell to be right. He would be prepared to say that the defendant was right in refusing to marry the plaintiff provided that he was in such a state that marriage would be dangerous to him and disastrous to the State by the begetting of idiot children. His lordship was, however, unable to say that the medical evidence went to the full extent of the proof needed, and in that it failed in this the contract had been broken without legal excuse and the defendant's plea was not established. Judgment, therefore, must be for the plaintiff.

Proceeding to assess the damages, Mr. Justice Darling considered that however much the plaintiff's feelings might have suffered, if she were a reasonable woman she would say that she had escaped very great danger of a miserable life. Further, it appeared that she had not lost a rich husband or a man of high position. The defendant was now in receipt of £40 per annum as a kind of compassionate allowance, for doing light work in an institution for wounded soldiers, and the plaintiff had lost nothing of any value. He therefore assessed the damages at a farthing, and refused to make an order that the defendant should pay costs, expressing the opinion that it was not to the plaintiff's advantage or to the public interest that such an action should have been brought.

It will be seen that the importance of Mr. Justice Darling's judgment lies in his reliance on, and revival of, the statement of Lord Bramwell's opinion. Lord Bramwell was a sound lawyer and a man of vigorous mind and strong "common-sense." In this instance he seems to have anticipated the scientific point of view of a generation later than his own. When a verdict has been found for a defendant based upon Lord Bramwell's judgment in Hall *v.* Wright an opportunity will no doubt be given for review of this important legal and social question by the Court of Appeal.

CONTROL OF VENEREAL DISEASE.

The Attitude of Women towards Preventive Measures.

Two recent meetings of women are interesting in showing an increasing readiness to accept the position that advocacy of early disinfection is not incompatible with the dictates of morality when the measures suggested are enunciated in the right spirit. At the Portsmouth branch of the N.C.C.V.D. on March 8th Miss Norah March addressed women on "Propaganda for Prevention of Venereal Diseases." Mrs. K. Edmonds, the honorary secretary of the branch, who occupied the chair, stated that the day was coming when the teaching and practice of prevention would take a normal place in the campaign against venereal diseases. This meeting was largely attended by women representatives of various societies and their friends. At the seventh annual meeting of the Leicester and Leicestershire Midwives Association, held two days later, Mr. C. J. Bond in the chair, the following resolution was passed:—

> That though this association approves of immediate treatment and, where practicable, of self-disinfection after exposure to the risk of venereal infection, it does not approve of the distribution to the public of prophylactic packets, and it feels very strongly that any instruction written, printed, or otherwise given on the subject should include a carefully worded statement pointing out the immorality of promiscuous sexual intercourse, as well as the danger thereby incurred of venereal disease.

Mrs. James Bilson, who seconded the resolution, set out clearly the arguments for early self-disinfection, and no dissentient voice was heard. After discussion the resolution was carried unanimously. Mr. Bond laid stress upon the necessity for midwives to realise their great opportunities for helping in the anti-venereal campaign. He regarded the present marked lowering of the moral standard as the chief factor in the spread of venereal diseases.

Portsmouth's Experiment in Prophylaxis.

By a resolution recently passed,[1] the Health and Housing Committee of the Portsmouth Borough Council adopted a report by its medical officer of health, Dr. A. Mearns Fraser, and urged its council to empower them to take the steps recommended by him with a view to the prevention of venereal disease. Dr. Fraser in his report laid stress upon the prevention of disease rather than its treatment as the more appropriate function and aim of a health authority, and explained the nature of the measures for self-disinfection most likely to be carried out by the ordinary man indulging in promiscuous sexual intercourse. With regard to the part to be taken by the council as sanitary authority in promoting such self-disinfection, he did not advocate the provision by it of "packets" or of the preparations which would be used in them, but that it should take such steps as might be necessary to spread a knowledge of the means of self-disinfection. He also pointed out that in the endeavour to check the spreading of venereal disease by advice as to disinfection there was nothing inimical to, or incompatible with, the prosecution of other measures at the same time for the promotion of chastity. It will be interesting to know later the means adopted at Portsmouth for the dissemination of the precautionary knowledge suggested and the results so far as they are traceable. These should to some extent be ascertainable by the collection of information as to the sale of the disinfectants recommended, and as to the comparative number of cases treated, wherever trustworthy figures can be obtained. This assumes, of course, that the Portsmouth Borough Council adopts the recommendation of its Committee and follows it with energy. The simultaneous carrying out of similar measures in other districts would, in time, enable a correct judgment to be formed as to the value of instruction of the kind indicated when distributed by public authorities. In such cases those also who fear that immorality may be increased by public measures for its prevention will have an opportunity for verifying their predictions or for seeing them unfulfilled.

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[1] THE LANCET, March 13th, p. 634.

Association of Officers at Treatment Centres.

Practitioners in charge of or working at V.D. clinics realise the advantage which would accrue from the discussion of clinical and other subjects immediately connected with their work. In small towns it must be difficult for them to achieve this end, but in the larger ones the medical officers of clinics might well arrange to meet, say once a month, for the purpose of discussing certain aspects of their work which had been previously selected. And the discussions might be accompanied by the exhibition of illustrative cases. By means of such an organisation useful research work would be inaugurated. As an example, we would cite the desirability of comparing and contrasting the value of various methods of treatment. Friendly coöperation on these lines would allow of one method being put into effect at one clinic whilst other methods were practised elsewhere. Another gain from such association might be the formation of a library dealing with venereal diseases in all their aspects, including both text-books, monographs, and the periodic literature, which in the majority of cases it would be impossible for the individual officer to obtain. From time to time a well-known venereologist might be invited to address the members on some subject of common interest. Such associations would not only make for the increased dignity of this branch of medicine, but should foster a spirit of comradeship and a friendly competition amongst its members.

The Study of Venereal Diseases at Strasbourg University.

A practical course of instruction for practitioners and foreign medical men in venereal diseases is to be held by Professor L. M. Pautrier and his assistants at the dermatological clinic of the Faculty of Medicine of Strasbourg University from May 1st till July 14th. The course will comprise 40 classes at the clinic and 10 classes on laboratory technique, and its scope will be entirely practical. Every student will have the opportunity of actual manipulative treatment of patients, including the administration of intravenous injections, and will receive a series of microscopic slides, also a certificate of attendance. The library of the University and the local hospitals will be open to students, who are asked to apply to M. le Professeur Pautrier, Clinique des maladies cutanées de la Faculté de Médecine, Hôpital civil, Strasbourg, for further particulars. The fee for the whole course is 300 francs.

TUBERCULOSIS.

New Lights on the Epidemiology of Phthisis.

SINCE the establishment of the relation of Koch's bacillus to tuberculosis there has been a deplorable tendency to regard the main problem in connexion with this disease as solved. Let the principles governing the control of other infectious diseases be logically applied to Koch's discovery, and this disease, too, it is assumed, will vanish as surely as night follows day. Segregation, tuberculin therapy, and a host of other measures are advocated as the obvious remedies for a well-defined disease which fits neatly into the niche provided by that much-abused term, a nosological unit. A useful corrective to this complacent attitude is to be found in Dr. J. Brownlee's "An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland," Part III.[1] Though his study is statistical, he treats his subject, on the whole, in a suggestive rather than in a dogmatic manner. And wherever he is dogmatic, he also shows a catholic appreciation of the complexity of the problems with which he is concerned. At least one definite and logical conclusion emerges from the mass of evidence available. Tubercle among young adults on the one hand, and middle-aged persons on the other, shows so many and such fundamental differences that it cannot be regarded as one and the same disease. No valid interpretation of the decline of phthisis during recent years can be simple; it must pay regard to the multiple nature of the types of the disease. In an earlier report Dr. Brownlee distinguished between the phthisis of young adult life and that of middle age. He also identified an old-age type closely related to that of young adult life. These two, or possibly three, types of disease correspond with separate types of bacillus, or, as Dr. Brownlee is less inclined to believe, they mark different types of response made by the human body to the infection at different ages. The present report gives further evidence establishing the validity of this differentiation into types. It shows that, while the young-adult and old-age types of phthisis vary almost independently of the hygienic surroundings, the middle-age type is very closely correlated with the general standard of health as measured by the death-rate. The young-adult type of the disease, unlike that of middle-age, seems to be more common where the feeding is poor and where little attention is paid to wet and damp. In some regions, at least, it can be correlated with exposure to south-west winds and to characters of the soil. Dr. Brownlee's investigations show that the young-adult type is more common above glacial clay than glacial sand or the highly organic London clay. It is less common in districts with a comparatively high death-rate from tuberculosis in childhood and in districts in which there is much middle-age phthisis. It is also less common in counties from which a large amount of tubercle-infected milk is sent to London. On the other hand, it appears to bear no relation to hygienic surroundings nor to the disease of the population. Indeed, it would seem to be a disease rather of the country than of the town, and one bearing no relation to the density of the population.

Very different are the characteristics of phthisis at middle age. It appears to be independent of wind, and in London, for instance, its incidence is as great in such exposed parts as Hampstead as in the sheltered valley of the Thames. It appears also to be independent of the nature of the subsoil. On the other hand, it is comparatively common in districts with a high death-rate from tuberculosis in childhood and with a large amount of tuberculous milk. It is intimately related to the general hygiene, as measured by the death-rate, and to the density of the population. As for the phthisis of old age, it does not appear to be related to subsoil, hygienic conditions, density of population, or any other direct external factor. The only association definitely established is with the employments of coal. iron, and lead mining and slate-quarrying. But the cause of this association is at present quite unknown.

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[1] Medical Research Committee, Special Report Series, No. 46, H.M. Stationery Office, pp. 89.

The value of Dr. Brownlee's work is not confined to the material he has collected and analysed, important as this is. He has submitted working hypotheses by which a mass of other available but hitherto imperfect knowledge may be criticised and assessed. Possibly his hypotheses may solve some, at any rate, of the many problems of tuberculosis that have hitherto been shelved as incomprehensible paradoxes. To the single-minded, who see in phthisis nothing but a paraphrase of the housing problem, it is discomforting that in Christiania the death-rate from tuberculosis has steadily declined during the war in spite of (and who is bold enough to suggest because of?) an unprecedented shortage of houses and consequent overcrowding. Yet in the northern, thinly populated districts of Norway tuberculosis is increasing at such an ominous rate that decimation, if not extermination, is threatened. And how can we interpret, with the knowledge hitherto at our disposal, the observations made many years ago by Professor Johannessen, who found that, at a training college in the east of Norway where the disease is prevalent, the death-rate from pulmonary tuberculosis was ten times as great among pupils from the west coast, where the disease is comparatively rare, as it was among the pupils drawn from the neighbourhood of the college? Frankly we cannot. But light may be thrown on these and countless other observations if illumined by Dr. Brownlee's hypotheses. In the sphere of research his is a challenge to bacteriologist and clinician alike. To the advocates of hasty administrative action, panting to dragoon consumption out of existence by the expenditure of millions on the policing of consumptives, he offers a sobering draught of agnosticism.

Though he covers a wide field and opens up many new paths to future progress, Dr. Brownlee presents his main thesis in a crisp and concise form—a remarkable achievement considering the figures with which he juggles. His candid confession of the limitations of the statistician's sphere of usefulness will, no doubt, go some way towards disarming critics constitutionally disposed to regard statistics as mendacity systematised. Thus far, and no farther, is Dr. Brownlee's own verdict on his findings. "The matter for the moment must be left in this state until it has been seriously tackled by the bacteriologists. Statistics alone will not give the solution."

Factors in the Increase of Consumption.

Many explanations have been given of the increase of pulmonary tuberculosis in recent years, and doubtless it is due to several causes. Two clear facts must be kept in mind when weighing the respective importance of different factors—viz., that the rise began before the war and has been concurrent with the rise and fall of influenza. The increase since the war is in great part apparent only, and due to elimination from the country of a large section of the most healthy class of the population. The February number of the *Journal of State Medicine* contains two articles on the early diagnosis and treatment of this disease. Dr. Halliday Sutherland thinks it is more reasonable to attribute the higher death-rate from both tuberculosis and influenza to lowered resistance due to vitamine starvation during the war rather than to failure of existing methods of prevention. A more ample supply of butter and fat meat is much to be desired. But whatever the source of the recrudescence of tubercle bacilli, it is of supreme importance that the mischief they are working should be detected at the earliest possible moment, and to this end Dr. Sutherland's reasoned appeal to the general practitioner not to postpone his diagnosis until tubercle bacilli is found in the sputum should be taken to heart by all who wish to cure their patients and bear their part in the fight against tuberculosis. Tubercle bacilli in the sputum indicate that the lung is breaking down and the disease already advanced. Dr. Sutherland insists on the value of loss of appetite and dyspepsia as early symptoms, calling for the application of such special tests as X rays and tuberculin. Dr. Hyslop Thomson moots the suggestion that not only bovine tuberculosis is produced by milk, but also human by transmutation from bovine through prolonged residence in the human host. The possible truth of such a theory gives additional reason to call for immediate application of the "Tuberculosis Order, 1913," and the "Milk and Dairies (Consolidation) Act, 1915," which have been waiting till the completion of the war.

A Well-authenticated Epidemic of Tuberculosis.

The medical supplement to the forty-eighth (and last) annual report of the Local Government Board, to which we have already referred on several occasions, contains a very interesting account by Dr. A. S. MacNalty of an outbreak of severe illness in a home authorised to receive girls from boards of guardians. Forty cases of illness occurred with eleven deaths. The possibilities of certain of the cases being croupous pneumonia and of the existence of a concomitant outbreak of influenza were considered and excluded. Tuberculosis was of long-standing in the institution, a focus of tuberculous infection existing as far back as 1913, while a fatal case of pulmonary tuberculosis occurred in 1915. The infection was probably introduced from without. The girls came from bad surroundings, exposed to tuberculous infection in infancy. Some had a pronounced family history of tuberculosis, and many entered the home at the 12–15 age-period, when their physical efficiency was already impaired. Unsatisfactory conditions in the home favoured the spread of tuberculosis by contact infection. The administration of the home was defective: the beds were overcrowded; there was no trained nurse on the staff; complaints of illness by the girls were discouraged; the dietary was meagre; there was lack of regular exercise and interference with the hours of sleep. Dr. MacNalty thinks that tuberculous infection had been accumulating for a number of years, passage from individual to individual gradually exalting its virulence until an explosive outbreak occurred. His report indicates that, given a community of persons with some predisposition to tuberculosis, the introduction of tuberculosis into this community, the infection being favoured by unsatisfactory conditions of environment, may result in an epidemic of a rapidly fatal character. The report, which appears in abstract only, deserves to be printed in full and to have the widest publicity.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Scottish Board of Health: Consultative Councils.

ON Friday, March 12th, the members of the four Consultative Councils established by the Scottish Board of Health were addressed in Edinburgh by Mr. Munro, K.C., M.P., Secretary for Scotland. Mr. Munro said that the Consultative Councils had been appointed to arrange and advise regarding four separate matters—medical and allied services, National Health Insurance, local health administration and general health questions, and the special problems of the Highlands and Islands. He desired to welcome them on behalf of the Board of Health and himself, and to have the opportunity of emphasising the common purpose for which these bodies were alike designed and fitted to serve. It was the intention of the Board that all the bodies should have the fullest opportunity of forming and expressing free and independent judgments on the questions on which they had to deliberate; they would select their own chairmen and regulate their own procedure. For the effective working of the Councils it was essential that there should be the very frankest interchange of confidence between them and the Department, and a ready interchange of views and opinions between the members themselves. The Board would place at its disposal all the information in their possession which they might reasonably require in arriving at decisions. As a counterpart the Board would expect them to respect its confidence, and observe proper discretion with regard to the information which would be placed at their disposal. The duty of the Board, as expressed in the Act of Parliament, was "to secure the effective carrying out and coördination of measures conducive to the health of the people." That was its watchword and charter, and the members of the Councils were invited to coöperate to achieve that supreme and inspiring purpose. The questions which had been referred to the Councils bore intimately upon that master purpose, among these being "the question of a reformed local authority for health administration, its area and constitution, and the powers and duties to be transferred to it"; "the question of applying to Scotland the principles of the Maclean Committee's report on the transfer of functions of Poor-law authorities in England and Wales." It had also been referred to them to consider the provision of such forms of medical service as they considered should be available for the community, the question of medical research in Scotland, and to consider whether the present hospital service is adequate and to make recommendations for its improvement or for the provision and maintenance of an adequate service. These were examples of the great problems which had to be solved and which would require all their skill and experience. The establishment of the Board of Health was intended to prepare the way for a vigorous campaign to raise the standard of health of the people of this country. There was no nobler object, and for its attainment it required the full support of public opinion, and hearty coöperation between the Department and the Councils on the one hand, and the interests affected on the other hand. It would be the special function of the Councils to ensure success along these two lines, and to keep in close touch with opinion outside. He was certain they could undertake a profoundly important share in making the country a healthier, and therefore a happier, place, and in assisting Scotland to lead the way in this vital national enterprise.

Notification of Acute Encephalitis Lethargica.

A memorandum has been issued by the Scottish Board of Health explaining the nature and symptoms of acute encephalitis lethargica. The disease has so far been of rare occurrence in Scotland, and the Board suggest to medical officers of health that they should circularise all the medical practitioners within their districts if the nature of the area and the circumstances indicate its advisability. After summarising the clinical features of the disease, the memorandum proceeds:—

> Acute encephalitis lethargica, though it has occurred in England in epidemic form, has never attained to extensive proportions. But it is important that in all parts of Great Britain an informed outlook should be kept for its recurrence. Little is known regarding its essential nature, the channels by which it is spread, or, consequently, the means by which it may be prevented and controlled. That lack of knowledge, along with its high case-mortality and its resistance to treatment, make it important that every case should be recognised and studied. It is therefore desirable that cases suspected to be of the nature of acute encephalitis lethargica or even considered remotely to resemble it should be intimated to the medical officer of health, who should afford every facility towards confirmatory diagnosis, treatment, and such isolation as he considers necessary. With this end in view it is desirable also to bring to his notice cases of ordinary acute poliomyelitis.

The memorandum is based upon the report to the Local Government Board (England) of an Inquiry into an Obscure Disease, Encephalitis Lethargica (1918; H.M. Stationery Office; 2*s.* 6*d.*).

BRISTOL HOSPITALS: ANONYMOUS CONDITIONAL GIFT.—The Lord Mayor of Bristol recently stated that £100,000 had been anonymously offered to the funds of the hospitals of Bristol provided they undertook an amalgamation along the lines now under consideration. An interesting feature of the plan for amalgamation (so far as it has been made public) is the provision for representation of the University on the council to which it is proposed to entrust the control of the hospitals.

URBAN VITAL STATISTICS.

(Week ended March 20th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had increased from 15·6 to 17·1 in the four preceding weeks, further rose to 17·9 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 17·8, or 0·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 9·0 in Oxford and in Warrington, 9·3 in Acton, and 9·8 in Wallasey, to 27·2 in Barnsley, 29·9 in South Shields, and 49·2 in Dudley. The principal epidemic diseases caused 504 deaths, which corresponded to an annual rate of 1·5 per 1000, and comprised 230 from measles, 120 from whooping-cough, 69 from diphtheria, 57 from infantile diarrhœa, 24 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 3·0 in Nottingham and Newport (Mon.), 3·2 in West Hartlepool, 3·6 in St. Helens, 4·0 in Barnsley, and 5·4 in Wigan; and whooping-cough of 2·1 in Barrow-in-Furness and 6·2 in Gloucester. The deaths from influenza, which had steadily increased from 66 to 230 in the seven preceding weeks, further rose to 312, and included 91 in London, 40 in Birmingham, 16 in West Ham, 13 in Leeds, 11 each in Manchester and South Shields, and 10 in Plymouth. There were 2158 cases of scarlet fever, 2066 of diphtheria, and 8 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2182, 2045, and 7 respectively at the end of the previous week. The causes of 48 deaths in the 96 towns were uncertified, of which 12 were registered in Birmingham, 5 in Liverpool, and 4 each in London and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had increased from 14·2 to 16·0 in the four preceding weeks, further rose to 17·8 per 1000. The 407 deaths in Glasgow corresponded to an annual rate of 19·1 per 1000, and included 11 from influenza, 9 from measles, 5 each from whooping-cough and infantile diarrhœa, 4 from diphtheria, and 2 each from enteric fever and scarlet fever. The 87 deaths in Edinburgh were equal to a rate of 13·3 per 1000, and included 2 from influenza and 1 each from measles and diphtheria.

Irish Towns.—The 195 deaths in Dublin were equal to an annual rate of 24·5, or 4·5 per 1000 above that recorded in the previous week, and included 9 from whooping-cough, 3 each from measles and infantile diarrhœa, 2 from influenza, and 1 each from enteric fever, scarlet fever, and diphtheria. The 293 deaths in Belfast were equal to a rate of 37·0 per 1000, and included 33 from influenza, 8 from whooping-cough, 6 from infantile diarrhœa, 5 from scarlet fever, 3 from measles, 2 from enteric fever, and 1 from diphtheria.

VITAL STATISTICS OF LONDON DURING FEBRUARY, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 7·7 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 10·5, 9·9, and 8·5 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Hampstead, Islington, Finsbury, the City of London, and Bermondsey; and the highest in Fulham, Holborn, Bethnal Green, Wandsworth, Deptford, and Greenwich. The 3 cases of small-pox notified during the month belonged to Poplar. The prevalence of scarlet fever showed a slight decrease from that recorded in January; this disease was proportionally most prevalent in Stoke Newington, Stepney, Lambeth, Deptford, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2266 scarlet fever patients at the end of the month, against 2848, 2841, and 2476 at the end of the three preceding months; the weekly admissions averaged 279, against 427, 350, and 280 in the three preceding months. Diphtheria was slightly less prevalent than in the preceding month; this disease was proportionally most prevalent in Paddington, Hammersmith, Fulham, Holborn, Bethnal Green, and Wandsworth. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1572, 1845, and 1971 at the end of the three preceding months, numbered 2003 at the end of February; the weekly admissions averaged 240, against 215, 239, and 263 in the three preceding months. The prevalence of enteric fever was about equal to that in

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,358,309**	**3**	**1172**	**1082**	—	**39**	**1**	**45**	**212**	**9**	**2**	**2565**	**7·7**	**1**	**162**	**15**	**96**	**157**	**3**	**70**	**504**	**1·[illegible]**	**5564**	**16·6**
West Districts:																								
Paddington	143,938	—	30	56	—	2	—	1	4	—	—	93	8·4	—	1	2	6	4	—	2	15	1·4	152	13·8
Kensington	157,886	—	24	34	—	2	—	1	6	1	—	68	5·6	—	1	—	2	11	—	4	18	1·5	207	17·1
Hammersmith ...	130,981	—	12	41	—	3	—	2	7	—	—	65	6·5	—	—	1	2	3	—	4	10	1·0	150	14·9
Fulham	152,543	—	45	55	—	—	—	3	9	—	—	112	9·6	—	6	1	2	4	—	3	16	1·4	181	15·5
Chelsea	60,573	—	13	13	—	2	—	2	3	—	—	33	7·1	—	1	—	—	—	—	—	1	0·2	74	15·9
CityofWestminst'r	127,533	—	37	18	—	2	—	1	7	—	—	65	6·6	—	—	1	—	3	—	3	7	0·7	117	12·0
North Districts:																								
St. Marylebone ...	97,953	—	18	24	—	7	—	—	4	—	—	53	7·1	—	1	—	1	2	—	—	4	0·5	97	12·9
Hampstead	88,012	—	12	8	—	6	—	—	4	—	1	31	4·6	—	4	—	1	—	—	—	5	0·7	69	10·2
St. Pancras	219,434	—	62	54	—	2	1	2	9	2	—	132	7·8	—	17	2	1	12	—	4	36	2·1	290	17·2
Islington	323,034	—	75	56	—	—	—	4	17	—	1	153	6·2	—	16	—	3	18	—	8	45	1·8	453	18·3
Stoke Newington...	50,954	—	17	7	—	—	—	—	4	—	—	28	7·2	—	1	—	2	—	—	—	3	0·8	62	15·9
Hackney	216,736	—	42	63	—	—	—	2	8	—	—	115	6·9	—	25	1	16	17	1	3	63	3·8	308	18·5
Central Districts:																								
Holborn	38,156	—	5	19	—	—	—	1	4	—	—	29	9·9	—	3	—	—	—	—	1	4	1·4	63	21·5
Finsbury	75,291	—	17	8	—	1	—	—	5	—	—	31	5·4	—	1	—	2	1	—	—	4	0·7	122	21·1
City of London ...	13,893	—	2	3	—	—	—	—	—	—	—	5	4·7	—	—	—	—	1	—	—	1	0·9	16	15·0
East Districts:																								
Shoreditch	98,134	—	27	22	—	—	—	1	4	—	—	54	7·2	—	20	—	2	1	—	1	24	3·2	190	25·2
Bethnal Green ...	110,085	—	33	59	—	1	—	1	12	—	—	106	12·6	—	7	—	6	11	—	4	28	3·3	171	20·2
Stepney	232,506	—	81	50	—	1	—	1	12	1	—	146	8·2	—	3	1	4	17	—	4	29	1·6	358	20·1
Poplar	153,644	3	45	25	—	3	—	3	3	2	—	84	7·1	1	3	1	4	7	1	2	19	1·6	229	19·4
South Districts:																								
Southwark	179,971	—	41	54	—	—	—	2	13	—	—	110	8·0	—	6	—	5	8	1	2	22	1·6	311	22·5
Bermondsey	124,239	—	36	10	—	—	—	1	3	1	—	51	5·4	—	13	—	2	8	—	—	23	2·4	153	16·1
Lambeth...	282,322	—	114	43	—	—	—	1	14	—	—	172	7·9	—	10	1	6	7	—	5	29	1·3	369	17·0
Battersea	159,316	—	35	38	—	—	—	3	4	—	—	80	6·5	—	3	—	2	4	—	5	14	1·1	188	15·4
Wandsworth... ...	333,693	—	78	116	—	3	—	5	19	1	—	222	8·7	—	2	—	9	4	—	3	18	0·7	332	13·0
Camberwell	273,802	—	77	75	—	—	—	4	16	—	—	172	8·2	—	3	2	6	5	—	9	25	1·2	354	16·9
Deptford...	111,205	—	53	26	—	—	—	2	8	—	—	89	10·4	—	4	—	2	2	—	—	8	0·9	130	15·2
Greenwich	98,484	—	40	24	—	3	—	—	4	—	—	71	9·4	—	7	1	4	2	—	1	15	2·0	125	16·5
Lewisham	167,754	—	60	45	—	—	—	1	4	—	—	110	8·5	—	3	1	4	5	—	2	15	1·2	172	13·4
Woolwich	136,237	—	41	36	—	—	—	1	5	1	—	84	8·0	—	1	—	2	—	—	—	3	0·3	121	11·6
Port of London ...	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

the preceding month; of the 39 cases notified during the month 7 belonged to St. Marylebone, 6 to Hampstead, and 3 each to Hammersmith, Poplar, Wandsworth, and Greenwich. There were 30 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 44, 25, and 25 at the end of the three preceding months; the weekly admissions averaged 6, against 5, 2, and 4 in the three preceding months. Erysipelas was proportionally most prevalent in Stoke Newington, Holborn, Finsbury, Bethnal Green, Southwark, and Deptford. The 45 [illegible] of puerperal fever included 5 in Wandsworth, 4 in Islington, 4 in Camberwell, and 3 each in Fulham, Poplar, and Battersea. The 9 cases of cerebro-spinal meningitis included 2 in St. Pancras and 2 in Poplar; while the 2 cases of poliomyelitis belonged respectively to Hampstead and Islington.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Feb. 28th, the deaths of 5564 London residents were registered, equal to an annual rate of 16·6 per 1000; in the three preceding months the rates had been 13·5, 13·1, and 14·6 per 1000. The death-rates ranged last month from 10·2 in Hampstead, 11·6 in Woolwich, 12·0 in the City of Westminster, 12·9 in St. Marylebone, 13·0 in Wandsworth, and 13·4 in Lewisham, to 20·1 in Stepney, 20·2 in Bethnal Green, 21·1 in Finsbury, 21·5 in Holborn, 22·5 in Southwark, and 25·2 in Shoreditch. The 5564 deaths from all causes included 504 which were referred to the principal infectious diseases; of these 1 resulted from small-pox, 162 from measles, 15 from scarlet fever, 96 from diphtheria, 157 from whooping-cough, 3 from enteric fever, and 70 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, St. Marylebone, Hampstead, Finsbury, Wandsworth, and Woolwich; and the highest in St. Pancras, Hackney, Shoreditch, Bethnal Green, Bermondsey, and Greenwich. The fatal case of small-pox belonged to Poplar. The 162 deaths from measles were 27 in excess of the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in St. Pancras, Hackney, Holborn, Shoreditch, Bermondsey, and Greenwich. The 15 fatal [illegible] of scarlet fever were 4 fewer than the average, and included 2 in Paddington, 2 in St. Pancras, and 2 in Camberwell. The 96 deaths from diphtheria exceeded the average by 34; the greatest proportional mortality from this disease occurred in Paddington, Stoke Newington, Hackney, Bethnal Green, Southwark, and Greenwich. The 157 fatal cases of whooping-cough were 54 in excess of the average; this disease was proportionally most fatal in Kensington, Hackney, the City of London, Bethnal Green, Stepney, and Bermondsey. Three deaths from enteric fever were registered during the month, against an average of 6; these deaths belonged respectively to Hackney, Poplar, and Southwark. The 70 fatal cases of infantile diarrhœa were 6 above the average; the greatest proportional mortality from this disease occurred in Hammersmith, Holborn, Bethnal Green, Battersea, and Camberwell. In conclusion, it may be stated that the aggregate mortality in London during February from these principal infectious diseases was 30 per cent. above the average in the corresponding period of the five preceding years.

AN inquest was held recently at Lowestoft on a plumber employed by the G.E.R. It appeared that on Oct. 5th, 1918, while testing the pressure of the gas in a gas-main [illegible] one of the quays at Lowestoft he had inadvertently inhaled a quantity of gas. He went home, and was attended for a week by a doctor, who gave him a certificate, stating that he was suffering from hæmorrhage of the lungs caused by gas poisoning. From the time of the accident the man's health deteriorated, and he eventually died from pulmonary tuberculosis about 18 months after he was poisoned by the gas. Dr. L. H. Hay, who gave medical evidence at the inquest, stated that he first attended the deceased in October, 1919, when he found him in the last stages of tuberculosis of the lungs, to which disease his death was due. He stated that his predecessor, Dr. Thompson, who had first attended the man, attributed the disease to the gas poisoning, and that the G.E.R. Company's doctor in London had accepted this [illegible] a cause of death. Dr. Hay had not known of a similar case before. The coroner's jury returned [illegible] verdict in accordance with the medical evidence.

Correspondence.

"Audi alteram partem."

NAVAL MEDICAL MEMORIAL FUND.

To the Editor of THE LANCET.

SIR,—May I bring the following to the notice of any of your readers who may be interested. It is proposed to perpetuate, by a suitable memorial, the memory of the medical officers, nursing sisters, and men of the sick berth staff who were killed or died on service during the war. The memorial will be dedicated to permanent, reserve, and temporary officers, R.N. and R.N.V.R., and permanent and reserve nursing sisters and sick berth staff.

The final decision as to what shape the memorial will take will be in strict accordance with the wishes of the majority of the subscribers to the memorial fund, provided that the amount received will be sufficient for the purpose.

Those of your readers who have not already received a letter on this subject, and who may wish to subscribe, are invited to write to the Honorary Secretary, Naval Medical Memorial Fund, Medical Department, Admiralty, who will forward a copy of the original letter that has been circulated amongst those whose addresses are still on record at the Admiralty.

I am Sir, yours faithfully,

C. K. BUSHE,

Surgeon Commander, R.N., Honorary Secretary.

Admiralty Medical Department, 1 Lake Buildings,
St. James's Park, S.W. 1, March 23rd, 1920.

SLEEPING SICKNESSES.

To the Editor of THE LANCET.

SIR,—With the general tenor of your annotation on the above, which appeared in THE LANCET of March 13th, I think we must all agree; the public, as well as the profession, want a simple, popular name for lethargic encephalitis. Your annotation, however, contains one sentence referring to me, personally, with which I must respectfully beg to disagree. It is there suggested that the recent misuse of the term "sleeping sickness" by the lay press to designate cases of lethargic encephalitis can be traced to a remark made by me at the discussion held at the Royal Society of Medicine in October, 1918. It is, of course, gratifying to think that anyone, especially a member of the lay press, has remembered my words so long, even though, by taking them from their context, their meaning has been entirely misconstrued. I am afraid, however, that there is a more simple and probable, but less flattering, explanation. This abuse of the term "sleeping sickness" by the lay press only began a few weeks ago, so far as my information goes, whereas the discussion at the Royal Society of Medicine took place 18 months ago. I cannot think that any journalist has troubled to rummage amongst the old records of the Society's proceedings to find a term which, in connexion with African news, stares him in the face almost every week in his own columns. It is there he has seen it, found it "appropriate," and, with the journalistic eye for a good headline, laid hold of it without troubling to inquire whether it was already "appropriated" or not. Others have merely followed this smart lead. Unless the writer of your annotation has some definite proof that his theory is the correct one, I shall hold to the opinion that mine is much the more probable, and decline to believe that I am responsible, in the slightest degree, for the present "terminological inexactitude" in the lay press. I apologise for having taken up so much of your valuable space on a personal matter, but as my name has, quite needlessly I think, been introduced, I cannot allow it to stand unanswered. The question of much greater interest is, "What is to be done to put things right?" As popular names "Nona" or even "R(h)aphania" (vide THE LANCET, March 20th) seem peculiarly unsatisfying, whilst, for our own professional use, we have already a sufficiently unsatisfactory name, "encephalitis lethargica." Why change it? Personally, I hope we shall retain it until the bacteriologists provide us with such data as will lead to a permanent name of real value.

It is, however, desirable that we should have an alternative or popular name which we can use in dealing with the public. It is very inconvenient to have to say, "Your child is suffering from lethargic encephalitis." It is cumbrous and unintelligible, not to say alarming. In my experience it is usually met by the rejoinder, "Will that be the new disease we've heard so much about, doctor?" Now, it is obvious that we cannot go on calling it the new disease much longer; besides, according to some authorities, it is not a new disease at all and never has been!

Your annotation puts the position very well, and I cannot do better than quote it: "It remains for those who are concerned for an informed and accurate public opinion on health matters to devise some popular term for encephalitis lethargica less cumbrous than 'lethargic encephalitis' and free from the objection to 'sleeping sickness.'" Such a popular term should contain some reference to one or more of the salient features of the disease; it should avoid committing us to any views as to ætiology or pathology, and it should have some precedent in the popular nomenclature of allied conditions. I therefore humbly submit to the consideration of my colleagues the term "sleeping palsy" as an alternative or popular name for "encephalitis lethargica." It meets all the requirements I have mentioned. We have excellent precedents in the popular terms, "shaking palsy" for paralysis agitans, and "infantile palsy" for acute poliomyelitis. In fact, to some, "sleeping palsy" would only be the name for an atypical case of "infantile palsy"! I cannot think that the term I suggest would lead to any real confusion with true "sleeping sickness" (trypanosomiasis) any more than "infantile palsy" causes confusion with "infantile diarrhœa."

With their usual acumen the lay press have realised that a name, which contains the word "sleeping," meets their requirements, and have purloined the first they came across. We cannot punish them for their crime, but by a judicious process of barter we can make it innocuous. If they will give up the "sickness," which they do not want, we will give them, in place of it, the "palsy," which will suit them as well, and they can keep the "sleeping," which they will probably do anyhow! If this suggestion is approved, the full terminology, at present, would be "encephalitis lethargica, or sleeping palsy."—I am, Sir, yours faithfully,

Sheffield, March 21st, 1920. ARTHUR J. HALL.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—I have read, with great interest and entire approval, Major W. H. Broad's letter in your issue of March 6th, with reference to blind masseurs and masseuses treating patients by remedial exercises and muscle re-education. I do not feel, however, that he has fully answered the last part of your article of Feb. 21st, which states that "teachers of massage would do well to make this clear to their blind pupils"—viz., that the blind administrator is handicapped, and, unless this limitation is recognised, he or she will be tempted to mete out to patients inferior treatment. As a medical practitioner holding the Teacher's Certificate of the Inc. Soc. Trained Masseuses, and having several years' experience of teaching both blind and sighted men and women students, I should be very grateful if you would allow me to express my opinion that a well-trained, well-educated, blind masseur or masseuse is fully competent to give remedial exercises and muscle re-education. I have had many opportunities of observing the results of their treatment of patients under my care, and these results invariably have been most excellent. This being my experience, I am justified in continuing to impart to my blind students the same amount of knowledge that I do to my sighted students, telling the blind that they are not to think they have any limitations. I have taught blinded officers and men, with a perfectly clear conscience, during the five years that St. Dunstan's has been open. I never allow an exercise to be imperfectly performed on account of blindness, and I expect—and get—the same degree of perfection from the blind as from the sighted.

I am, Sir, yours faithfully,

Nottingham-place, W., March 16th, 1920. AGNES KEEN.

To the Editor of THE LANCET.

SIR,—The question raised in your annotation of Feb. 21st as to what extent blind men are capable of undertaking treatment of cases with Swedish remedial exercises is an interesting one. Major W. H. Broad states (THE LANCET, March 6th) that "blind men can apply any of the exercises described by Kleen, Wide, or any other disciple of Ling," and this, I think, will not be doubted by anyone who has noticed the adaptability of the unfortunate blind.

At the same time it is quite clear to those who have actually practised Swedish remedial exercises that something more definite is required for successful treatment than mere application of movements—namely, a *keen observation*. This is a particularly important factor in the treatment of deformities of the chest and spine where a constant watch on the patient is necessary. It will be argued that a blind man's touch makes up for his loss of sight; his touch is wonderful, but with both hands engaged in applying exercises he will be unable to make use of it during treatment; the loss of sight will thus handicap him in controlling the position of his patient. In chronic nervous diseases where incoördination is often the chief trouble, free movements in steady progress form an important part of the treatment, and it may be asked how the blind man is to know whether these movements are executed satisfactorily or not.

I feel sure that motives such as these guided the Incorporated Society of Trained Masseuses in their decision to exclude the blind masseur from their S.R.E. examination. But there is no need for lament, for the blind man who possesses the massage diploma has a great field for his ability. The after-treatment of fractures, of infantile paralysis, and the like, will provide scope for his acute touch.

The one difficulty which I foresee is that after 1922 the society will only give a conjoint diploma in massage and remedial exercises. Perhaps the massage diploma might be retained for a few years for the benefit of the blind, who deserve all the sympathy and help that can be given them.—I am, Sir, yours faithfully,

C. WESTMAN.

Brunswick-place, Harley-street, W., March 16th, 1920.

WOMEN'S MEDICAL SERVICE IN INDIA.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to a leading article in THE LANCET of Nov. 1st, 1919, on the Women's Medical Service for India. May I comment on one or two statements in this article?

In the first place there is a quotation (p. 790) which is given as from the main report of the Women's Medical Service for 1918, but which is really a quotation from a report written by Dr. Catherine Wickham, who was directed by the Central Committee of the Dufferin Fund, with the consent of the Surgeon-General of Bengal, to visit and report on hospitals in Bengal under women medical subordinates. These hospitals are not in any way connected with the Central Committee of the Countess of Dufferin's Fund or the Women's Medical Service. They are under the Surgeon-General of Bengal and the municipal authorities in the various towns, who alone have any power to improve the conditions. The same is true of the conditions revealed in the report of Dr. Agnes Scott, W.M.S., assistant to the Inspector-General of Civil Hospitals, Punjab. The Central Committee of the Dufferin Fund is only connected with the hospitals of the Women's Medical Service (19 in number), and even for these has no administrative powers, and can only influence the local authorities by its power of removing the medical women lent from the Women's Medical Service. This has been done in two cases where the conditions made a good standard of work impossible. The reports so published, therefore, should not be used to discredit the Women's Medical Service, of which both the administrative body and many individual members are doing all in their power to improve the work of women subordinates.

Later in your article surprise is expressed that stress is not laid on the need for a nursing service parallel to the Women's Medical Service. As a matter of fact, such a service has been under consideration, and this year the first step has been taken in the organisation of a Dufferin Nurses Examining Board, which lays down uniform standards for Anglo-Indian and Indian nurses and arranges for examinations, certificates, and registration. But during the last five years it has been impossible to think of organising any women's services except those required by the war. The existing services have been maintained with difficulty and the nursing question has been especially acute owing to the large numbers of nurses employed in war hospitals. The Central Committee has taken care that every one of the hospitals under members of the Women's Medical Service has a matron qualified as a nurse and a staff of Indian or Anglo-Indian women under her. Lectures are given, examinations are held, all have regular turns of duty, and although, no doubt, in many cases the nursing is rough or inefficient as compared with English hospitals the patients are not neglected. There is no such arrangement in the majority of civil hospitals in India.

You state at the beginning of the report that the map is so thickly dotted with hospitals as to suggest camouflage when compared with the written report. You have not perhaps noticed the "References" below the map, which state that only those marked in red are hospitals under members of the Women's Medical Service. Those marked in blue are missionary hospitals, and those marked in green hospitals under local authorities. With the last two classes the Central Committee has nothing to do, but the information is given in the map because it is of service to the public generally to be able to see which parts of the country are most urgently in need of medical aid. You state that from the teaching schools there are "pathetic lists of scholarships and prizes awarded with ever-lowering standards." Facts, however, show that the standard of work of indigenous medical women is improving enormously. While in the year 1909 only 23 women were taking the University courses in medicine and 98 the "practitioner class" course (unregistrable), in 1918 161 women were taking University courses and 30 the "practitioner class" course.

Lastly, I come to the statement that "the development of the Women's Medical Service in India during the last seven or eight years shows little progress, indeed ...... a relative retrogression is displayed." May I draw your attention to the following improvements initiated by the Central Committee since 1914, the year when the service was founded?

1. Experienced members of the Women's Medical Service have been appointed to act as assistants to the Inspectors-General of Civil Hospitals for the inspection of women's hospitals in the Punjab and United Provinces.

2. Qualified medical assistants have been engaged in all the hospitals of the Women's Medical Service and qualified nurses as matrons.

3. A member of the Women's Medical Service has been appointed as Joint Secretary of the Fund to visit all members of the Women's Medical Service periodically and inform the Central Committee regarding their conditions of work.

4. Of the 19 hospitals under members of the Women's Medical Service four have been completely rebuilt on modern lines. Four more have funds in hand and are about to be completely rebuilt. Six others have had very important additions and improvements made.

5. The organisation of the Dufferin Nurses Examining Board already mentioned.

6. The Central Committee has applied to Government for, and received, grants (*a*) for the establishment of a school for training health visitors and midwife supervisors in Delhi; (*b*) for the establishment of a system of well-trained midwife inspectors in a number of selected centres in India, all under the inspection of a member of the Women's Medical Service; (*c*) for the organisation of courses of post-graduate instruction for medical women in India on the newer methods of treat-

ment of venereal diseases. The two first are already in working order, the third is now being organised.

7. The Central Committee has published in 1918 a special report on "Improvement of the Conditions of Childbirth in India" and in 1919 a report on "Venereal Diseases among Women in India." This last contained confidential information, and was therefore circulated privately only.

It must be remembered that the Central Committee has only had a subsidy of £10,000 a year for the Women's Medical Service, and that owing to the demand for medical women in the war it has had extreme difficulty in keeping the service up to strength.

I am, Sir, yours faithfully,
M. I. BALFOUR, M.B., C.M.,
Joint Secretary, Countess of Dufferin's Fund.
Delhi, Dec. 24th, 1919.

⁂ Dr. Balfour has misread the title of our article, which dealt generally with the medical service of women in India. With regard to our use of Dr. Wickham's report, in the main report, which Dr. Balfour signs, it is stated: "The Central Committee from the many inspection reports in its own office can fully endorse the remarks made by Dr. Wickham and Dr. Scott, which apply to practically every part of India." Our criticisms were directed, not against the Women's Medical Service of India, or the work of the Lady Dufferin Fund, but against the difficulties under which they are placed. And it was our appreciation of these difficulties that prompted the plea for a State Service of women with conditions of local prestige, pay, and leave more nearly approaching those of the Indian Medical Service. Should such a change come about we have no doubt that the Government of India would avail itself of the extensive organisation of the Lady Dufferin Fund.—ED. L.

MYALGIC PAINS AND MANIPULATION.

To the Editor of THE LANCET.

SIR,—With regard to Mr. R. C. Elmslie's letter on this subject in your issue of to-day's date, I am only too conscious of the assistance given to me by Mr. Elmslie himself, and other orthopædic surgeons in the treatment of cases, to be in anyway unmindful of my obligations towards them—their special skill and ability are not questioned. The point is whether there is *anything* to be learned outside the ranks of the profession. Unless I am mistaken, an offer was made to demonstrate cases before a committee of surgeons; had this offer been accepted the whole matter would have been settled.—I am, Sir, yours faithfully,

W. H. CLAYTON-GREENE.
Wimpole-street, W., March 20th, 1920.

To the Editor of THE LANCET.

SIR,—The correspondence under this heading has wandered wide since its opening. Mr. R. C. Elmslie, in your issue of March 20th, endeavours to show the fallacy of the "myth" that a bone-setter possesses some mechanical skill denied to the regular surgeon, or, at any rate, to the regular orthopædic surgeon. But with all respect I submit that a fallacy cannot be demonstrated by begging the whole question. Mr. Elmslie first gives the simple rules which govern the practice of the bone-setter. They are only two: first, restore mobility; second, restore the muscular power. Then he says: "Patients with derangement of the knee-joint should only be submitted to operation when continued locking of the joint takes place in spite of the fact that mobility is full and the muscles strong." I entirely misconceive the issues, unless I am right in believing that cases of this kind are precisely the cases that bone-setters profess to cure, and further, I, and many more of my profession, believe that we have personal knowledge of cases within this category which bone-setters actually have cured. Yet Mr. Elmslie says operation only.

Mr. Haldin Davis thinks that it is consonant with the dignity of the Royal College of Surgeons to appoint a committee of investigation to see if the case is as extremely simple as Mr. Elmslie suggests. I entirely agree with him. Certain it is that the matter cannot be settled by an invocation to Dr. Wharton Hood. I am old enough to remember that during his lifetime Dr. Wharton Hood was looked upon as hardly respectable. He wrote a large book in two volumes, a book almost forgotten. I should be surprised to hear that its precepts ever became a recognised basis of practice.

I am, Sir, yours faithfully,
Felixstowe, March 22nd, 1920. C. G. HAVELL.

ANÆSTHETISTS' FEES.

To the Editor of THE LANCET.

SIR,—Mr. H. Bellamy Gardner's letter in your issue of March 20th, with which I entirely agree, will serve a useful purpose if it leads to some understanding as to what fees special anæsthetists should now be entitled to charge. If it is admitted that their pre-war scale of fees was not excessive, it is obvious that the same rate of payment must be totally inadequate now, in view of the enormous increase in the cost of living.

The practice of anæsthetics as a specialty has an appreciable influence upon surgical results, and it is in the public interest that the fees of a whole-time anæsthetist should be sufficiently generous for him to earn a good living. Unless it is recognised that this is impossible on the pre-war scale, specialism in anæsthesia will gradually be starved out of existence.

In most districts general practitioners have met and agreed to raise their fees in some definite ratio. Why should anæsthetists not do likewise?

I am, Sir, yours faithfully,
J. HENRY CHALDECOTT.
Harley-street, W., March 22nd, 1920.

A PERMANENT ARMY DENTAL CORPS.

To the Editor of THE LANCET.

SIR,—The Executive Council of the Federation of Medical and Allied Societies has, at the request of the British Dental Association, addressed a letter to the Medical Committee of the House of Commons, as well as to the medical Members of Parliament who are also members of the Federation, asking for support of the proposal of the Secretary of State for War, issued in explanation of the Army Estimates, that a permanent Army Dental Corps should be instituted. That this proposal may be rejected or curtailed in Committee on the grounds of economy is regarded as possible by the British Dental Association. The formation of such a corps was the subject of a scheme submitted by the British Dental Association at the request of the War Office in August, 1919, and it is felt that the interests of national health are concerned in ensuring that the recommendations of the Secretary of State for war, which constitute the minimum on which an effective dental service can be established, are given effect to.

I am, Sir, yours faithfully,
N. HOWARD MUMMERY,
General Secretary.
The Federation of Medical and Allied Societies, 5, Vere-street, Cavendish-square, London, W. 1, March 20th, 1920.

PARAPHRENIA.

To the Editor of THE LANCET.

SIR,—Far be it from me to put a spoke in the wheel of progress; but I would like to suggest that the term "chronic hallucinatory psychosis," introduced by Dr. R. H. Steen, and mentioned in your issue of last week, should be forthwith expunged: (*a*) because the term is applicable to many varieties of mental disease and is therefore liable to create confusion; and (*b*) because the disorder to which Dr. Steen refers has already received the name "paraphrenia." Following Kraepelin, I have described the malady under this designation in the last edition of "Mind and its Disorders." As Dr. Steen's "acute hallucinatory psychosis" includes also some cases of melancholia (*sic*) and some of dementia præcox, the term stands self-condemned.

My chief reason for this letter, however, is that Dr. Steen and some other speakers at the discussion of his paper recommended psychoanalysis as a mode of treatment for this malady. Having had some psychoanalytic experience of paraphreniacs, I wish to utter a warning that the resistances, which are already very strong in these patients, become increased on psychoanalysis, that the ultimate result is unfavourable, and, therefore, that this mode of treatment is not to be recommended or attempted for such patients.

I am, Sir, yours faithfully,
W. H. B. STODDART.
Cavendish-square, W., March 23rd, 1920.

THE CULTIVATION OF THE MENINGOCOCCUS.

To the Editor of THE LANCET.

SIR,—Dr. H. Stanley Banks's article in THE LANCET of March 13th on the Serum Treatment of Cerebrospinal Fever is of considerable interest. The cultivation of the meningococcus is, however, not always such a simple process as Dr. Banks suggests. "Coagulated blood serum" is, of course, a very suitable culture-medium, but in many instances gives no growth until incubated for 48 hours, and occasionally fails altogether even when the usual precautions, as mentioned by Dr. Banks, are taken. Hence it is a frequent occurrence that one is unable to report on the type of organism for two–three days after first seeing the patient. Obviously this is a serious drawback if the clinician wishes to administer the homologous serum at once.

My experience *re* agglutination is that the macroscopic is the most reliable, and that Gordon's type sera are useless for the microscopic method. Theoretically, one should administer the homologous serum in any given case, but in practice I am not at all satisfied that it is a matter of great moment. I have examined many of the Lister sera for agglutinins to Gordon's four types of meningococci, and have found that each type serum agglutinates each type of coccus up to a varying titre—i.e., type 1 serum agglutinates not only type 1 coccus but also types 2, 3, and 4—similarly with type 2 serum, and so on. Type 4 coccus is extremely rare, so I always administer a mixed serum of type 1 and type 2. As type 3 coccus is so closely related to type 1 coccus, this mixed serum does well in type 3 infections. Before using this mixed serum one naturally must demonstrate to oneself that agglutinins for all three types are present.

I am, Sir, yours faithfully,
WILLIAM A. MUIR.
Wallasey, March 17th, 1920.

ANÆSTHETICS AND DIABETES MELLITUS.

To the Editor of THE LANCET.

SIR,—As a student I was taught that there was considerable risk in administering chloroform to patients suffering from diabetes mellitus. Fatal coma developed frequently within a day or two of the anæsthesia. This teaching was the result of experience and correct as far as it went, but since that time much has been added to our knowledge of diabetes mellitus. We have known for some time that when suitable precautions are taken the risk of post-operative coma is comparatively small. We know, too—but perhaps it is not known to all, hence the object of this letter—that the administration of any general anæsthetic, such as chloroform, ether, and nitrous oxide with oxygen, may lead to a comparatively slight case of diabetes mellitus developing into one of great severity.

It is only during the last five years that it has been possible to determine the gravity of any case of diabetes mellitus, because the mere percentage of sugar in the urine or the total quantity of dextrose excreted daily is no gauge to the extent of the alteration in the metabolism. Evidence seems to be accumulating that diabetes mellitus is due to a change in the interacinary cells in the pancreas; that the severity of the disease depends upon the number of cells destroyed; that the condition which has destroyed some cells has diminished the vitality of others, and these may be killed by various toxins brought to them in the blood, amongst them chloroform, ether, and nitrous oxide, and in all probability those elaborated by micro-organisms such as cause scarlet fever, pneumonia, measles, influenza, &c.

The observations upon which this conclusion is based are of the following type: A man suffering from diabetes mellitus, who excretes diacetic acid and β-oxybutyric acid along with a considerable quantity of sugar whilst on a diet extremely poor in carbohydrates, but rich in protein and fat, may be found to lose his glycosuria and all evidence of acidosis on a diet, say, of 50 g. carbohydrate, 60 g. protein, 180 g. fat. This diet possesses sufficient energy to allow the individual to maintain his weight and do as much work as is necessary to earn a living by manual labour. This man has an accident and breaks his arm. An anæsthetic is administered to permit the arm being placed in the best position. After the anæsthetic sugar is found in the urine, and persists. Upon reinvestigating the maximum diet which will control glycosuria it is found that it has fallen to 20 g. carbohydrate, 60 g. protein, and 100 g. fat. Often the deterioration in the metabolism is much greater than this. The patient can no longer remain on a diet which allows his urine to be free from sugar and permits him to retain his weight and live a useful life. He is, therefore, forced to disregard his disease, eat more or less what he likes, and he develops coma at a comparatively early date. The unnecessary anæsthetic may have shortened his life by years.

I quite realise that the presence or absence of sugar in the urine is not the best method of determining the optimum diet, but one which permits the majority of medical men making an attempt to do their best for the patient. In my opinion at the present day students should be taught that only operations that are absolutely essential should be performed upon diabetics; that spinal anæsthesia and local anæsthesia should be adopted when possible; that nitrous oxide with oxygen is less likely to damage the patient than ether, and ether is less likely to do harm than chloroform.

I am, Sir, yours faithfully,
O. LEYTON.
Portland-place, W., March 19th, 1920.

AFTER-EFFECTS OF MALARIA.

To the Editor of THE LANCET.

SIR,—I have been very much struck during the last 18 months while examining soldiers on their discharge, and after their discharge, when claiming for pensions, by the abnormal number of cases of thickened arteries occurring in men between the ages of 20 and 28, who have suffered from malaria during some period of their service. Many of these cases apparently have only been of mild type, some have been undergoing quinine treatment for prolonged periods, others have not.

I should be very glad to hear if this experience has been shared by other members of medical boards especially.

I may say that an examination of urine in these cases has been a routine, and the condition of arteries apparently exists in subjects which show no signs of, and in whose history there is no evidence of, albuminuria.

I am, Sir, yours faithfully,
A. HURRELL STYLE, M.D.
Ministry of Pensions, Headquarters, Suffolk Area,
Church House, Bolton-lane, Ipswich, March 17th, 1920.

THE GENESIS OF TWINS.

To the Editor of THE LANCET.

SIR,—In a recent number of *Genetics*[1] I have presented statistical evidence which shows, I believe conclusively, that it is far more probable that twins form a homogeneous group of uniform origin than that they are of two distinct types—"fraternal" and "identical." Dr. Thorndike's data are, I believe, the only extensive body of measurements of twins, and from his data it appears that (1) the variation in resemblance agrees closely with the variations due to sampling on the hypothesis of uniform origin, and is materially less than it would be for dual origin; (2) twins most alike in any one trait are not more alike than other twins in other traits.

In view of these facts the genesis of twins becomes a new problem, and I have ventured to put forward the hypothesis that twins arise from identical ova fertilised by different spermatozoa. Physiological evidence is probably beyond our reach; genetic evidence is, however, sufficient to prove or disprove this suggestion. If it be true, twins who differ in any Mendelian character must have a heterozygous father. In the comparatively few cases which I have so far collected, which include eye colour, osteopathyrosis, and colour-blindness, it has, in fact, been the father and not the mother who is heterozygous. Extensive pedigree material is being searched for similar cases, and it is in order to make a wide appeal to physicians that I beg the indulgence of your space.

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[1] Princeton University Press, September, 1919.

Eye colour, being, I believe, the only normal human trait which is certainly Mendelian in inheritance, naturally supplies the great majority of the cases. I therefore add a simple tabular form in which complete information as to a single family may be included :--

—	Father.	Mother.	Twins.	Brothers.	Sisters.
Simplex ...		1	1	2	1
Duplex	1		1	1	2
Unknown ...				1	

Simplex stands for the complete absence of yellow or brown pigment from the iris; *duplex* stands for its presence, as in black, brown, and hazel eyes.

I am, Sir, yours faithfully,

R. A. FISHER,
Statistician.

Statistical Laboratory, Lawes Agricultural Trust, Rothamsted Experimental Station, Harpenden, March 22nd, 1920.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. F. E. Gunter relinquishes the temporary rank of Colonel.

Lieut.-Col. W. J. Taylor retires on retired pay.

Major D. Ahern relinquishes the temporary rank of Lieutenant-Colonel.

Major A. C. Osburn relinquishes the acting rank of Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Major: Capt. and Bt. Major T. A. Weston; Capts. R. H. Lucas, L. S. C. Roche, S. H. Smith, W. T. Graham; Temp. Capts. C. B. Davies, R. B. Roe, E. J. Maxwell, P. McCool, F. O. Clarke, L. Anderson.

To be acting Majors: Capt. and Bt. Major W. F. Christie; Capt. W. B. Rennie; Temp. Capt. C. B. Jones.

Capt. J. W. G. H. Riddel resigns his commission.

Capt. J. E. Hepper is seconded for service with the Egyptian Army.

M. J. Whelton to be temporary Captain.

Temp. Lieut.-Col. G. S. Jackson (Major and Bt. Lieut.-Col., 7th North'd Fus., T.F.) relinquishes his temporary commission.

Officers relinquishing their commissions:—Temp. Major J. L. Maxwell (retains the rank of Major). Temp. Capt. H. C. Gibson (granted the rank of Major). Temporary Captains retaining the rank of Captain: H. S. Sugars, R. A. C. Rigby, H. L. S. Griffiths, J. A. R. Thompson, T. S. Goodwin, A. R. Jennings, W. Weir, H. M. Wilson, W. J. Thomas, R. K. H. Gillespie, W. C. Mayo, A. H. Manfield, A. Leitch.

GENERAL RESERVE OF OFFICERS.

Captains relinquishing their commissions: F. Oppenheimer and H. B. Sherlock (retains the rank of Captain).

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing their commissions and retaining the rank of Captain: P. A. O'Brien and C. S. Parker.

TERRITORIAL FORCE.

Capt. (acting Lieut.-Col.) J. M. A. Costello relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. (acting Major) W. Applevard relinquishes the acting rank of Major on ceasing to be specially employed.

West Lancashire Divisional Sanitary Section: Capt. A. Reid is seconded.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capt. W. H. Anderson; 2nd Lieut. H. W. Boot.

Capt. J. J. Sinclair relinquishes his commission on account of ill-health contracted on active service, and is permitted to retain his rank.

INDIAN MEDICAL SERVICE.

Capt. T. D. Murison to be temporary Major.

THE HONOURS LIST.

Temp. Lt.-Col. R. J. Norris, R.A.M.C., has been appointed a Commander of the Most Excellent Order of the British Empire, for valuable services rendered in connexion with the war.

The name of Surg. Lt. H. C. C. Joyce, R.N., has been mentioned in despatches.

FOREIGN DECORATIONS.

American.

Distinguished Service Medal.—Lt.-Col. and Bt. Col. Sir E. S. Worthington, Kt., K.C.V.O., C.B., C.M.G., R.A.M.C.

Belgian.

Ordre de la Couronne.—Officier: Temp. Maj. C. Christy, R.A.M.C.

Ordre de Leopold II.—Commandeur: Lt.-Col. Sir D. Prain, Kt., C.M.G., C.I.E., F.R.S., I.M.S. (ret.).

Médaille du Roi Albert.—Capt. O. R. Horwood, Austr. A.M.C.

Egyptian.

Order of the Nile.—4th Class: Surg. Comdr. J. Thornhill, R.N.

French.

Légion d'Honneur.—Officier: Maj. D. L. Fisher, D.S.O., R.A.M.C. (T.F.).

Croix de Guerre.—Capt. W. Donald, M.C., R.A.M.C. (S.R.); Temp. Capt. H. L. Messenger, M.C., R.A.M.C.

Ordre de l'Etoile Noire.—Officier: Maj. J. H. Barbour, R.A.M.C.

Médaille d'Honneur avec Glaives (en Vermeil).—Capt. W. V. Corbett, R.A.M.C.

Médaille des Epidémies (en Argent).—Capt. and Bt. Maj. R. E. Kelly, C.B., R.A.M.C. (T.F.); Capt. J. F. Roberts, R.A.M.C. (T.F.).

Hedjaz.

Order of El Nahda.—4th Class: Temp. Capt. G. C. Ramsay, R.A.M.C.

Italian.

Order of the Crown of Italy.—Commander: Col. C. A. Hodgetts, C.M.G., Can. A.M.C. *Officer:* Maj. C. Bramhall, O.B.E., R.A.M.C. *Cavalier:* Capt. P. R. Bolus, R.A.M.C. (T.F.).

Japanese.

Order of the Rising Sun.—3rd Class: Surg. Capt. G. T. Broatch, C.B.E., R.N.

Portuguese.

Military Order of Aviz.—Commander: Capt. J. W. McNee, D.S.O., R.A.M.C. (S.R.); Col. A. D. Sharp, C.B., C.M.G., A.M.S. (T.F.).

Serbian.

Order of St. Sava.—5th Class: Capt. C. G. Skinner, R.A.M.C. (T.F.).

THE MEDICAL SERVICES IN AFGHANISTAN.

IN a despatch dealing with the operations against Afghanistan, commencing in April, 1919. the Commander-in-Chief in India makes the following references to the medical services:—

> As regards the Medical Service, the number of regular R.A.M.C. and I.M.S. officers available in India was short of our requirements for complete mobilisation. The source of recruitment of these categories in India is small, and it had been found impossible to make good the deficiency from home. I was fortunate, however, in obtaining the services of 107 officers and 1280 other ranks of the R.A.M.C. who happened to be in India en route from Mesopotamia to the United Kingdom. The field medical units of the field army were already partially mobilised with personnel when the outbreak of war occurred, and the equipment of other field medical units and of 21 general hospitals was held ready for issue in medical mobilisation stores. The number of mobilised medical units employed during the campaign amounted to 29 field ambulances, 12 casualty clearing stations, 53 staging sections, 15 sanitary sections, 8 advanced depôts of medical stores, 1¼ base depôt medical stores, and 16,000 beds in general hospitals—i.e., 5000 for British and 11,000 for Indians. The general hospitals were established at Landi Kotal, Peshawar, Nowshera, Rawalpindi, Gharial, Kuldana, Kohat, Bannu, Dardoni (near Miranshah), Dera Ismail Khan, Tank, Manzai, and Quetta. In addition to these, convalescent camps provided accommodation in the Murree Hills for 1200 British at Upper Topa and Lower Gharial and for 3000 Indians at Kohat and Rawalpindi. Medical transport included two British and eight Indian broad-gauge ambulance trains, one combined British and Indian narrow-gauge ambulance train, and over a hundred specially fitted railway ambulance coaches for use with the ordinary passenger service.
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> The two outstanding features of the campaign from the medical point of view were, firstly, an outbreak of cholera of unusual severity, and, secondly, the abnormal climatic conditions under which the troops were called upon to operate. An epidemic of cholera, seldom equalled in extent and severity during the past ten years, was raging among the civil population of the Punjab and North-West Frontier Province during the period of the operations. It first made its appearance among the troops in the forward areas at Hangu on June 1st and at Jamrud on June 4th, but though it spread rapidly in both the Kohat and Khaibar areas and for a time gave rise to grave anxiety, it was successfully stamped out by June 20th, an achievement for which the Medical Service deserves the greatest credit. A severe epidemic also occurred in Derajat and the Tochi Valley, and cases continued intermittently from the middle of June till the close of the operations.
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> Shortly after the outbreak of hostilities a heat wave of remarkable severity occurred over the whole of the Punjab and North-West

Frontier Province, the daily shade temperatures registered at Peshawar in May, June, and July being 5° to 7° F. above the daily average of the past 20 years. The Government of India will appreciate how great a strain was imposed on the troops when called upon to operate under these conditions in such areas as the Khaibar, the Kurram, the Derajat, and Waziristan.

In spite of these conditions the incidence of sickness was not excessive. The total admissions during the period May 5th to August 9th amounted to 10,882 British and 45,774 Indians, giving a daily admission-ratio per 1000 of 4·98 British and 2·97 Indians. This compares not unfavourably with admission-ratios in Mesopotamia, which in 1917 were 5·04 and 2·11 and in 1918 3·48 and 2·27 respectively.

The Commander-in-Chief also states that the energy and promptness displayed in dealing with an outbreak of cholera reflect the greatest credit on the Medical Service, whose work throughout has been deserving of the highest praise.

THE CHADWICK GOLD MEDALS.

At the first of the three lectures on Military Hygiene in Peace and War, delivered on March 8th at the Royal Society of Arts by General Sir John Goodwin, Sir William J. Collins, chairman of the Chadwick trustees, presented the Chadwick gold medals and prizes of £100 to Surgeon-Commander Edward L. Atkinson, D.S.O., R.N., and Brigadier-General W. W. O. Beveridge, C.B., C.B.E., D.S.O., A.M.S., for services in promoting the health of the men in the navy and army. Surgeon-Commander Atkinson, who in 1909 began investigations into the use of vaccines in gonorrhœal rheumatism, formed one of the medical section of the Antarctic expedition under Captain Scott in 1913, and in the following year, when on a Colonial Office investigation into tropical diseases, contributed to the discovery of the life-cycle and mode of spread of *Schistosoma japonicum.* During the war he rendered valuable services in the prevention of disease caused by pests of flies. He has been awarded the Albert Medal for saving life on a burning ship, and a brief account of his gallant action was published in THE LANCET of May 24th, 1919, p. 915. Brigadier-General Beveridge was Assistant Director of Medical Services for Sanitation at General Headquarters during the whole period of the war, and was the initiator of the Divisional Sanitary Section in 1914. He was a member of many important committees for the investigation of disease and the conservation of food, was responsible for pure water-supplies in the field of operations in France, and invented several processes which greatly conduced to economy and efficiency in general sanitation during hostilities.

DEATHS IN THE SERVICES.

Deputy Surgeon-General C. A. Innes, A.M.D. (retired), died at Lynwood, Charmouth, Dorset, in his eighty-ninth year, on March 17th. He received his first commission in 1855, and was present at the siege and capture of Sebastopol (medal with clasp, and the Turkish medal). In 1856 he joined the 52nd (Oxfordshire) Light Infantry and proceeded with this regiment to India, where he was present at the siege and assault of Delhi, his regiment furnishing the storming party of the Kashmir Gate (medal, and promoted in recognition of his services). He also served for many years with the 16th (Queen's) Lancers.

Obituary.

NATHANIEL PAINE BLAKER, M.R.C.S., L.S.A.

ALTHOUGH he had long given up active work, Mr. Nathaniel Paine Blaker, who died at Cherington, Hurstpierpoint, on March 12th, will be widely mourned, particularly in his native county of Sussex.

Born at Mays, Selmeston, in 1835, "Nat" Blaker, as he was affectionately known all through his life, left school at 16, and began to learn farming, but after a year's work, discouraged by the agricultural depression, he determined to enter the medical profession, and became a pupil at the Sussex County Hospital at Brighton. Three years later he went to Guy's, took his M.R.C.S. and L.S.A. in 1858, and was appointed assistant surgeon at the Convict Hospital at Lewes. From there he went with the invalid convicts to the newly-built model prison at Knapp Hill, Woking. In 1860 he returned to Brighton as house surgeon first to the Dispensary, and then to the Sussex County Hospital. On the termination of this appointment three years later he set up in private practice, and soon gained a large clientèle as a pioneer of the new Listerian methods. He had patients in all parts of the district, where, driving his own pair-horse phaeton, he became a familiar figure.

Mr. Blaker appeared in many famous cases, of which the most notable was the Brighton chocolate poisoning mystery. Called to several cases of sickness after eating fruit and chocolate, his suspicions led him to communicate with the police, with the result that a certain Miss Edmunds was arrested and was placed on trial. This woman had formed an insane attachment to a local medical man, and had conceived the idea of disposing of his wife. She sent anonymous presents of poisoned chocolate and fruit, and in the hopes of diverting suspicion contrived that poisoned chocolates should be mixed with the stock of a local confectioner.

Mr. Blaker was the author of a book of reminiscences entitled "Sussex in Bygone Days," describing the village life of last century, with its primitive habits and customs. The chapter on Altered Type of Diseases is of special interest. Mr. Blaker was impressed with the decline of vesical calculi, especially in children, of bone syphilis and tubercle, and with the increase of neurotic ailments. Of his experiences as surgeon to the prison at Lewes he says: "I learned also that men, even convicted felons, are not all bad, that some traces of good feeling are always to be found, and I must say I received as much gratitude, or even more, from convicts than from many others."

Although he had lived in retirement for 20 years Mr. Blaker's death leaves a notable blank in the county of Sussex, for his memory is still treasured by a large circle of old patients, friends, and colleagues. He was admired and respected alike for his medical knowledge, his sound judgment, and his intellectual honesty, while his kindness and friendly interest endeared him to all who came in contact with him. It was these gifts that enabled him to become—as undoubtedly he was—one of the most successful practitioners of his day.

GEORGE VICTOR PEREZ, M.B. LOND.

THE death from pneumonia of Dr. George V. Perez at his home in Santa Ursula, Tenerife, on Feb. 29th, removes a physician of international distinction. The descendant of a line of doctors, Dr. Perez received his training at University College Medical School, afterwards holding a resident appointment at the Brompton Hospital for Consumption. He graduated M.B. Lond. in 1883 and returned to Tenerife, where he was for many years the leading physician in Orotava. He was known to medical literature through his description of the characteristic sounds often yielded by fibrous mediastinitis—"Perez's sign." His clinical work combined great accuracy and observation with a special keenness for therapeutics. He was an early advocate of tincture of iodine for typhoid. He cherished a strong belief in the healing virtues of raw garlic for pulmonary and other affections. His latest therapeutic inquiry related to the beneficial action of eucalyptus in glycosuria and diabetes, following on the work of Dr. A. G. Faulds of Glasgow. For long his health had not been good. After undergoing a severe abdominal operation in London he did not completely recover his strength; and shortly he retired from practice. But his active mind never rested from the attempt to elucidate pathological problems. The medical profession loses in him an untiring student.

MORGAN DOCKRELL, M.A., M.D. DUB.

Dr. Benjamin Morgan Dockrell, who died in London on March 15th in his sixty-first year, was son of the late Thomas Dockrell, of Monkhouse, co. Dublin, and was educated at Cheltenham and Trinity College, Dublin, taking his clinical studies later at Dr. Steevens' and Adelaide Hospitals. Qualifying in 1882, he started in special dermatological practice six years later, and was for nearly 30 years on the staff of St. John's Hospital for Diseases of the Skin in Leicester-square, being senior physician and Chesterfield lecturer at the time of his death. During his period of service the hospital developed into a large skin clinic and became a centre of post-graduate teaching. He was intimately associated with the London Dermatological Society, presiding over its gatherings in 1912. He had been in failing health for two or three years, his death coming suddenly in the midst of his work.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 17TH.

Major DAVID DAVIES asked the Pensions Minister if medical men employed on medical boards had had their pay raised by 50 per cent., while medical men employed as assessors on sessional rates had had their pay raised by only 25 per cent.; if so, whether he would state for what reason this distinction was made.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The answer to the first part of the question is in the affirmative, but the conditions of work of the medical board and the assessor are not the same, the members of the board being drawn from a panel, while the assessors are continuously employed.

Tuberculosis Expert on Medical Boards.

Mr. WILLIAM GRAHAM asked the Pensions Minister whether his attention had been directed to the fact that many discharged men suffering from tuberculosis in all parts of the country were being sent to ordinary medical boards for the re-assessment of their pensions; whether these pensions were, in many cases, being reduced; and whether he would take steps to ensure that an expert in tuberculosis should always be a member of a medical board when it dealt with the cases of men suffering from tuberculosis.—Sir J. CRAIG replied: Whenever a specialist's opinion is required arrangements are made to secure either that the tuberculosis officer of the district sits on the board, or that the man is referred to him for examination and report.

THURSDAY, MARCH 18TH.

Home Treatment of Disabled Men.

Mr. WALLACE asked the Pensions Minister whether he was aware of the dissatisfaction caused by one of the regulations of his Department which provided that before home treatment to disabled men recommended by the ordinary medical referee could be granted the recommendation might be cancelled by the D.C.M.S., who did not even see the disabled men; and what steps he proposed to take to remedy this.—Sir J. CRAIG replied: I am not aware of the dissatisfaction. The Deputy Commissioner of Medical Services may order hospital treatment instead of home treatment, but this occasions no hardship to the disabled man, who receives adequate allowances while in hospital, and also while awaiting admission. The Deputy Commissioner cannot, under the terms of the revised Circular 204, refuse allowances to a man accepted for home treatment without either having the man examined or obtaining the medical referee's concurrence.

Institutional Treatment of Tuberculosis.

Lieutenant-Colonel FREMANTLE asked the Minister of Health whether public health authorities were responding to the pressure he was putting upon them to provide further institutional accommodation for tuberculosis; whether such provision would require the diversion of labour and material from housing operations; and whether he would therefore require health authorities in the first instance to make full use for this purpose of any vacant accommodation in Poor-law infirmaries.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. I am doing all that is possible to facilitate the use by public health authorities for the treatment of tuberculosis of vacant Poor-law accommodation, in so far as it is suitable for the purpose, but the need for further provision for this purpose cannot be wholly met in this way. I do not think that the limited and necessary amount of new building for sanatoriums will affect housing operations.

Small-pox at Poplar.

Mr. ROBERT YOUNG asked the Minister of Health whether he was aware that an attempt had been made to burn down Bells Wharf, at Bromley-by-Bow, by persons unknown; whether the apparent reason for this attempt was the retention on these premises of goods believed to contain small-pox infection; whether nothing had been done to remove these goods for destruction since the outbreak of small-pox there, which occurred three weeks ago; whether persons who had been in direct contact with small-pox infection had not been isolated, but allowed to go about freely and mix with the community generally; whether some of these contacts had since developed small-pox; whether houses in which small-pox cases had occurred had not been thoroughly cleansed by the stripping of walls and lime-whiting, as in previous outbreaks; and what action he proposed to take to compel the local authority to do everything within its power to prevent the spread of this diease.—Dr. ADDISON replied: I have no information as to the first two parts of the question, but I am informed that the goods referred to are now being removed from the wharf. I understand that in accordance with the usual modern practice, persons who are known to have been in recent contact with others who have since developed small-pox are offered free vaccination and are bathed and their clothes disinfected, and they are kept under daily observation by the medical officers of the borough council for a period of 16 days. I am advised that as a general rule the incubation period of the disease is 12 days, and that during that period the infection of the disease is not spread, but that should any person under medical observation exhibit symptoms of illness he would at once be isolated. The answer to the fifth part of the question is in the affirmative, but I should point out that of the five contacts who have developed small pox three refused vaccination. I am advised that the method of disinfection of houses which has been adopted in Poplar is considered satisfactory, and that the local authority are doing everything within their power to prevent the spread of the disease.

Welsh Board of Health.

Mr. ALFRED T. DAVIES asked the Minister of Health whether a woman had been appointed to the Welsh Board of Health; whether reorganisation had taken place due to the increased work under the new Ministry of Health Bill, under which the Welsh Board of Health had been reconstituted from the late Insurance Commission; if so, what, if any, responsible positions under the Board had been allocated to women; and whether appointments had been made in accordance with the first of the words used in Clause 6 of the Ministry of Health Bill that the Minister in making appointments of staff should give equal consideration to the suitability of persons of both sexes.—Dr. ADDISON replied: The reply to the first part of the question is in the negative. The organisation of the Board and staff of the Welsh Board of Health is not yet complete, and due consideration will be given to the points raised in the honourable Member's question.

Nursing Associations and the Ministry of Health.

Captain REGINALD TERRELL asked the Minister of Health if he would state what reasons had actuated him in refusing the request of the Council of the Queen Victoria's Jubilee Institute for Nurses that representatives of the county nursing associations and of the institute should be appointed on certain of the consultative councils under his Department.—Dr. ADDISON replied: The total membership of a consultative council is restricted by Order in Council to 20, and I regret that within this limit it was not found possible to include persons having the special type of knowledge and experience in question in the Council on Medical and Allied Services. I am hoping, however, to have the advantage of their assistance on any committee of the council appointed to consider the future organisation of nursing services.

FRIDAY, MARCH 19TH.

Dogs' Protection Bill.

Sir F. BANBURY, in moving the second reading of the Dogs' Protection Bill, said that similar Bills had been read a second time on three previous occasions. The present measure was in the form in which it left the Standing Committee last year. Although there was considerable opposition on the part of some medical men to the Bill, he claimed that the opposition was by no means unanimous. According to an article in THE LANCET in May last year, it would appear that the progress of medical science would not necessarily be interrupted if his Bill were passed. He was anxious to test the feeling of the House on that occasion, and he hoped, therefore, that there would be a division.

Sir WATSON CHEYNE moved that the House should refuse to proceed further with a measure which would impose an unnecessary and serious obstacle to medical research. Last year nothing, in his opinion, was said in support of the Bill, except that the dog was the friend of man. This was really a matter of sentiment, and he would ask Sir F. Banbury whether the limitation of the operation of the measure to dogs meant that he would permit experiments on other animals?

Sir F. BANBURY said that he was concerned only with the Bill before the House. If a Bill was brought in dealing with other animals he would deal with it then.

Sir WATSON CHEYNE, continuing, said that the Bill was really class legislation of the very worst kind. As a matter of fact, dogs only formed a very small proportion of the animals operated on. The return for 1913, which was the latest available, showed that out of a total of 88,000 experiments on animals only about 400 or 500 dogs were dealt with. The chief reason why the dog was used in experiments was that, more than any other animal, his physiological processes approached closely those of man. Another reason was that as the dog lived with man and was the friend of man he was more easily handled in experiments, being undisturbed by fear. The popular idea seemed to be that the moment a medical man saw a dog he cut it open to see what it looked like inside. The whole subject of an experiment was carefully thought out weeks beforehand, and then the animal which would yield the best results from it was chosen. In the course of years a great deal of surgery had been built up on experiments on dogs. For example, there were spinal surgery and the surgery of the brain. The idea of this Bill was to prevent painful experiments, but on this point he claimed that the measure was unnecessary. The great majority of the work done upon dogs did not cause pain. It seemed to him rather curious that an owner of a dog might save his money by giving it any food he chose, but if he wanted to find out what was the best kind of food he was obliged to have a licence. The largest number of experiments on dogs were feeding experiments, and these would be stopped by this Bill. He hoped when this Bill was brought forward again next year that its promoters would find a better phrase than "calculated to cause pain." It was utterly wrong, and "likely to cause pain" would be much better. In cases where an anæsthetic was used, and the anæsthetic was ultimately increased until the animal died, there would be no pain. Experiments of this kind had produced information of enormous value. It had been found that every muscle of the body was connected with a part of the brain. In the case of disease or injury the part of the brain which was the seat of the injury could be mapped out by the reaction of the muscles. This was done during the recent war. He was not prepared to say that there were no experiments which might not cause pain, but he had thought the matter out very carefully, and his view was that the number of experiments on dogs that were painful must be very few. For the last 30 or 40 years the anæsthetising of dogs had been quite perfect. The sight of the requisite apparatus for these experiments in catalogues of instruments and appliances led the uninitiated to regard them as instruments of torture. But in the performance of a delicate operation it was necessary to have the subject fixed, and somewhat elaborate arrangements were necessary for that purpose. It was not necessary to abolish experiments on dogs in order to save the animals pain. If it were considered necessary to have more frequent or even constant official inspection of experiments no one would raise the slightest objection. The successful transfusion of blood, by which the lives of many soldiers had been saved during the war, was entirely the result of experiments on dogs. Why was it that medical men and scientists all over the world were opposed to the principle of this Bill? It was absurd to think of men of high repute in science standing in dark corners to torture animals. The reason for their opposition was because they realised their ignorance, and that they did not know nearly enough to carry through their job successfully. They wanted more knowledge. They could not afford to allow any means of acquiring more knowledge slip past them. It had been stated that more people had died of influenza since the armistice than were killed during the Great War. Ten people died every hour of the day and night from cancer and tuberculosis. With such an appalling death-rate from diseases of which they knew nothing they could not afford to give up any possible sources of information. He believed that the solution of the problem of cancer would come through investigation on dogs. The House, in dealing with this matter, had human life in its hands, and if it passed this Bill it would assume a great responsibility.

Captain LOSEBY, in seconding the motion, said he did so, not because he loved dogs less, but because he loved his own kind more.

Sir J. BUTCHER, in supporting the Bill, contended that the present law did not prevent painful experiments.

Lieutenant-Colonel MOORE-BRABAZON said the medical profession might be very knowledgeable on the subject of physiology, but they were extraordinarily ignorant of psychology. If they eliminated the vivisection of the dog they would take the heart out of the antivivisection movement in this country. The medical profession was probably the most reactionary trade-union that existed. If they would let this Bill go through there would be no opposition to vivisection of other animals.

Captain ELLIOT described the Bill as a pettifogging measure to obstruct as far as possible the progress of medical science. In rejecting the Bill last year the House performed a service of the utmost importance to humanity. Researches which began immediately after its rejection, and which would have been stopped if it had passed, had led to great scientific results and would lead to many more. The dog was the only animal upon which experiments in relation to the heart could be carried out. As a result of those experiments they were already beginning to find out something of the causes of heart disease. The House would be taking a terrible and overwhelming responsibility if it stopped these investigations. He did not think that any Member who went round a hospital and saw the wretched and blue-faced people sitting in bed gasping for breath, their legs swollen with dropsy, would take the responsibility of stopping these experiments. He thought that when they had a report from the Medical Research Committee saying that in their opinion this Bill would be in many directions a hindrance to the work of medical research their opinion was worth the utmost respect. That Committee had been working particularly on the question of rickets, and recent events had led to a great spreading of that disease in Central Europe, where it affected 8 per cent. of the children. —The honourable Member was still speaking at 5 o'clock when, in accordance with the rules of the House, the debate stood adjourned. The Bill accordingly was "talked out."

Typhoid Fever in the Army.

Mr. ROBERT YOUNG asked the Secretary for War whether a number of cases of illness in the army occurring in 1915 and 1916 in the Near East and sent to Malta, Lemnos, and other places were diagnosed by the clinical symptoms as typhoid fever; whether the majority of these cases were subsequently returned as suffering from other diseases, the altered diagnosis being based on agglutination tests performed by bacteriologists sent out for the purpose; and if he would say how the figures regarding typhoid fever in the late war could be compared with those for other campaigns in view of this alteration in the method of diagnosis.—Mr. CHURCHILL replied: Under active service conditions in the field it was often impossible to carry out careful and prolonged bacteriological and clinical examination of cases. Under these circumstances a provisional diagnosis was returned. Such cases on reaching the base hospitals, as at Mudros, Malta, and Lemnos, were submitted to bacteriological and clinical examination as a routine measure by the pathologists and physicians attached to such hospitals. In many cases the provisional diagnosis was altered, but until the investigation of the records which is now proceeding is completed it is not possible to give any estimate of the number of cases in which such alteration of diagnosis was necessary. Some of the cases provisionally diagnosed as enteric were subsequently returned as suffering from other diseases; and other cases, provisionally diagnosed as dysentery or diarrhœa, were finally diagnosed as typhoid or paratyphoid fever on the bacteriological evidence. The diagnosis of disease has undoubtedly been more accurate in the late war than in any previous campaign.

Mr. WATERSON asked the Secretary for War whether the figures regarding typhoid fever in the British army contained in the recent White Paper were based on returns made by clinical diagnosis of the disease, or whether they were based on returns made by bacteriologists after agglutination tests had been made.—Mr. CHURCHILL replied: The figures in question were based on returns made both by clinical and bacteriological diagnosis. Bacteriological diagnosis was employed in every case so far as the circumstances permitted.

MONDAY, MARCH 22ND.

Medical Services in the Army.

On the motion for going into Committee on the Army Estimates, 1920–21, Vote A,

Lieutenant-Colonel FREMANTLE said he wished to call attention to the Army Medical Service from a higher point of view than that taken professionally. Medical administration was not merely concerned with the cure of the sick and wounded and the prevention of disease, but it went to the root of efficiency, and therefore to the efficacy of strategy. Discoveries had been made from time to time of vast wastage in the reduplication of technical personnel in different forces of the Crown. He would confine himself to the medical service. They had not only the Army Medical Corps and the Naval Medical Service, but the Flying Force was now starting a medical service of its own. There was also frequent overlapping of the ground covered by the Army Medical Corps, by the Indian Medical Service, the Colonial Office, and the Foreign Office. An enormous economy might be effected by a system of coördination, and he suggested that the Army Council should take up the question of creating an Imperial General Medical Service. The work of medical men who had seen service generally ended at the age of 45, and the country then threw them on to the rubbish-heap or the golf links. But there were abundant possibilities for these men if the Army Medical Service were linked up with the civil medical services, such as the Poor-law and Pensions. Territorial officers had always been penalised, and in the late war while the medical officer who had done some training in peace-time was paid 14*s*., the officers who had not done any pre-war training got 24*s*. He strongly urged that the Director-General of the Army Medical Service should not only have a seat on the Army Council, but should be responsible for, and have the power to guarantee, the organisation, medical and sanitary, for the care and comfort of the sick and wounded in war.

Captain ELLIOT said we had lost many thousands of men in the late war because the Army Council had not taken the straightforward advice of the Medical Service. The medical corps had made contributions of the greatest value in respect to the treating of our armies in the field. He would simply mention two instances. It was impossible to give the young recruit too much to eat. They gave these growing boys 4000 or more calories a day, and they bolted it up, and like Oliver Twist came back for more. The best proof that these recruits did not get enough to eat was the fact that they were willing to spend their own money on food. They were to be seen going to the canteen to buy rice pudding at 11 o'clock in the morning. At the time of the demobilisation the physiological experts warned the Army Council that they would have a lot of these young fellows coming back to the camps, and that it would be necessary to increase the rations. But the Army Council took no notice until the Australian troops mutinied, and then the Council conceded to force what they had hitherto refused to reason. Another case in point was in regard to a disease called bilharzia, which attacked our troops in Egypt. As a result of medical discoveries our troops were rendered practically immune from this scourge, which had existed in Egypt from the time of the Pharaohs. He strongly urged that the Director-General of Medical Services should have a seat on the Army Council. There were many medical men in Mesopotamia who were not released because they were told that they were indispensable in the teeth of the fact that there were a number of native doctors there who were able to take their place. The reason why they did not do so was because, whatever might be said about the capacity of India for self-government, there was no doubt that the ordinary Indian resented extremely having to depend upon native medical officers. Yet the white doctors were actually paid less than the native doctors. This grave injustice was causing the utmost discontent in Mesopotamia, which was spreading to the Indian Medical Service, a noble force which at present was in a state of seething unrest. As soon as these officers were given permission to resign their commissions many hundreds of them would do so. He welcomed the small estimate for starting an Army Dental Corps. Dental treatment was one of the black spots in our Medical Service. He thought it was scandalous, after what the army nursing sisters had gone through, that they should not have the direct status of an officer. The women medicals n attendance with the auxiliary forces were in an even worse state. They were not counted as belonging to His Majesty's forces at all, and they did not get the income-tax rebate to which the other branches of the Service were entitled. The attitude of the War Office towards women was distinctly archaic, and badly required revision.

Sir A. WILLIAMSON (Financial Secretary to the War Office) said that a considerable amount of coöperation existed between the medical branch of the War Office and the civil medical service, and there was every desire to extend it and make use of the best knowledge that was available wherever t could be found.

The vote was agreed to.

National Health Insurance Bill.

Dr. ADDISON (Minister of Health), in moving the second reading of the National Health Insurance Bill, said it was proposed to increase the benefits in the case of men from 10*s*. o 15*s*. a week for sickness and from 5*s*. to 7*s*. 6*d*. for disablement. In the case of women sickness benefit would be ncreased from 7*s*. 6*d*. to 12*s*., and disablement benefit on the ame lines as for men. These benefits necessitated an ncreased contribution apart from the increased Treasury ontribution of 3*d*. per insured person—namely, 2*d*. from the mployer and 1*d*. from the employee. Maternity benefit was ncreased from 30*s*. to 40*s*. Sanatorium benefit it was proposed to take out of the Insurance Act altogether as the first tage in a comprehensive policy of dealing with the whole problem of tuberculosis in respect of all sections of the population. That policy he hoped at some not too distant ate to be able to state to the House. An extra mount, roughly equivalent to 2*d*. per insured person, would be given for the employment of medical referees nd consultants whom societies had hitherto had to mploy for themselves. The actual figure which would e contributed by the combined fund towards the cost f medical benefit was 9*s*. 6*d*. He had separated the medical benefit funds into distinct and definite departments. Drugs would be quite separate from the payments to practitioners for their services. He had arranged for a specified um, in the aggregate £300,000, which would be devoted, nder proper supervision and checks, in assisting the locomotion of practitioners in rural and scattered districts. The medical men, with whom he had had many meetings, had ecognised that in many respects, in certain places, insured ersons had not had so satisfactory a service as they ought o have. The standard he had laid down, and which had een frankly accepted, was that a practitioner should give to he insured person as good and complete attendance as he ave to a private person. He was happy to say that the rbitrator had accepted the offer of 11*s*., which he had made o the practitioners.

Mr. T. MYERS said he was glad that the right honourable entleman had referred to the provision to be made for medical referees. It had always been a delicate matter for private practitioner attending panel patients to exercise hat authority which he might have done for fear of suffering injury in other directions. A limitation should be put n the number of panel patients a doctor could take on.

Mr. ORMSBY GORE criticised the proposal to continue anatorium benefit in Ireland when it was being abolished lsewhere. Tuberculosis would never be effectively comated if it was treated in one way in England and another n Ireland.

Captain ELLIOT called attention to the serious position of the hospitals. The benefits of the National Insurance would have been utterly illusory had it not been for these voluntary institutions which were now faced with ruin. Yet the Ministry of Health made no announcement of anything to be done for them. Much remained to be done for the public health of this country, but much had been done. The people of this country were the healthiest in the world. They lived longer than the people of France or the people of America. Since the Franco-German War science had added five years to the life of the people of this country, and if the Minister of Health was properly supported he could add 10 or 15 years to the lives of our people. These were the real annexations and indemnities, and the doctors were the men to get them.

Dr. ADDISON assured the House that there would be no hiatus in the treatment of tuberculosis owing to the change of policy. He thanked the Consultative Council for their aid in framing the Bill.

The Bill was read a second time.

Duplicate Artificial Limbs.

Mr. RAMSDEN asked the Pensions Minister if he would say what were his reasons for refusing to supply a duplicate set of limbs to officers and men who had been amputated above or below the knee. This attitude caused hardship to the men concerned, as artificial limbs frequently needed repairing which necessitated the men staying in bed and thereby breaking time until the limbs were repaired, when the dissatisfaction of the employer, owing to the time which was so frequently broken, acted as a deterrent to the men obtaining work.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: There has been no refusal such as is suggested in the question. On the contrary, the principle is fully recognised that every officer or man who has lost a limb in the war should be supplied with a duplicate artificial limb for use when the first artificial limb is in need of repair. The systematic issue of the duplicate limb was commenced in October last, when the supply of the first artificial limb to the 42,000 officers and men concerned was approaching completion, and it is making good progress.

TUESDAY, MARCH 23RD.

Inoculation in the Army.

Mr. CHARLES EDWARDS asked the Secretary for War whether between 150,000 and 200,000 uninoculated men served in the British armies in France during the war; whether less than 4000 of these suffered from enteric, typhoid, or paratyphoid fever; and whether he attributed the immunity of these uninoculated men to the precautions taken regarding the provision of pure water and food and the measures for the destruction of refuse taken by the sanitary services.—Mr. CHURCHILL replied: During 1917 there were in France approximately 30,000 men who had not recently, or had never, been inoculated, and during 1918 the number was approximately 70,000. Good sanitation has always had a beneficial effect in checking the spread of disease. It is, however, also true that the immunity these men enjoyed was due to the fact that there was only a very small proportion of non-inoculated men in each unit.

Effect of Theatre Queues on Public Health.

Sir JAMES CORY asked the Minister of Health whether his department had considered the effect on the health of the community of the practice of forming queues in all weathers for the galleries and pits of the London theatres; and whether he would consider the desirability of calling a conference of theatre and music-hall managers to consider measures for doing away with this practice.—Dr. ADDISON replied: There is no sufficient evidence of the injurious effect of theatre queues to justify me in taking action in the direction suggested by the honourable Member.

Miners' Nystagmus.

Mr. SWAN asked the Secretary for the Home Department if he would state what steps, if any, were being taken either to mitigate or prevent the spreading of the disease of miners' nystagmus; and if he was aware of the great loss of coal output to the nation caused by it, as well as the physical pain caused by the disease to those affected.—Major BAIRD (Under-Secretary to the Home Office) replied: Working in the insufficient light given by miners' lamps is recognised as the main cause of this disease, and the question of improving the illumination is being investigated by a Departmental Committee, which my right honourable friend appointed last May under the chairmanship of the present Inspector of Mines. The Committee has been taking evidence both from those engaged in the industry and from scientific and medical experts, and conducting researches at the Home Office Experimental Station at Eskmeals and elsewhere, and they are about to carry out a series of practical trials with lamps giving a better light. The serious effects of this disease are only too obvious, and the honourable Member may be assured that all possible steps are being taken to find an effective remedy.

Medical News.

UNIVERSITY OF CAMBRIDGE: DIPLOMA IN RADIOLOGY AND ELECTROLOGY.—The next examination will be held at Cambridge: Part I. on Tuesday, July 27th, with practical work, and viva voce examination on July 28th; Part II. on Thursday, July 29th, with practical work on the following day. Candidates desiring to take the diploma by thesis should apply to the secretary, Dr. Shillington Scales, Medical Schools, Cambridge, for the necessary certificate forms. Should sufficient entries be received, courses of lectures and practical work in physics and in electrology will be held in Cambridge, beginning June 22nd, and finishing about mid-August, and in radiology, beginning Oct. 12th, and finishing in time for the examination at Christmas. The necessary clinical work can be carried out at Addenbrooke's Hospital, Cambridge. The physics course will be given by Dr. Crowther, by arrangement with Professor Sir Ernest Rutherford; the courses in radiology and electrology by the same lecturers, who have given the courses in London. Application should be made to Dr. Scales. It is hoped in future, to hold courses and examinations twice a year, the courses in Cambridge alternating with those in London.

UNIVERSITY OF LIVERPOOL.—At examinations held recently the following candidates passed in the subjects indicated:—

FINAL EXAMINATION FOR M.B. AND CH.B.

Part I., Pathology.—F. H. Alexander, G. P. F. Allen, Eleanor E. Briant, G. L. Gately, H. T. Hughes, Isobel K. Johnstone, J. G. L. Jones, R. J. Jones, H. R. Madan, J. B. Oldham, T. R. Roberton, C. F. H. Sergeant, F. C. H. Sergeant, S. S. Shrikanth, C. C. L. Spurring, and T. A. Williams.

Part II., Forensic Medicine and Toxicology and Public Health.—J. F. C. McColl, J. C. Twomey, and S. A. Walker.

Part III., Medicine, Surgery, Midwifery.—W. H. Butler and Mary S. Share-Jones.

Honours, Second Class.—Isabel M. Collier and W. H. Evans, distinction in Medicine; and H. Reid, distinction in Surgery.

DIPLOMA IN PUBLIC HEALTH.

A. E. Saunderson and W. F. Young.

LICENTIATESHIP IN DENTAL SURGERY.

Final Examination.—Dorothy A. Canning, C. H. Fearn, J. P. Flynn, G. Hepburn, E. F. Hope, A. R. B. Littlar, A. F. Morton, and J. Whitehead.

UNIVERSITY OF MANCHESTER.—At examinations just concluded the following obtained the Diploma in Public Health: Ahmed Aziz, J. P. Broom, J. H. Campain, T. E. Dickinson, W. E. Fitzgerald, J. R. Jagger, E. F. Hill, M. R. Soni, A. V. Stocks, C. F. White; and the following obtained the Diploma in Veterinary State Medicine: W. A. Macgregor, E. J. B. Sewell.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—The following committee has been appointed to exercise the powers of President of King Edward's Hospital Fund for London during the absence from the United Kingdom of the Prince of Wales:—The Earl of Donoughmore, K.P., Viscount Finlay, G.C.M.G., the Governor of the Bank of England.

A COMPLIMENTARY dinner to Sir George Makins will be held on Monday, May 10th, at the Wharncliffe Rooms, Hotel Great Central, London, at 7.30 P.M. for 7.45. Sir Cuthbert Wallace will take the chair. Any of Sir George Makins's friends who would like to be present are asked, if they have not already done so, to notify Mr. C. Max Page, 134, Harley-street, London, W. 1, before April 30th, in order that seating arrangements may be made. The payment of 1 guinea, not including wine, is to be made at the Wharncliffe Rooms, and no tickets will be issued.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—At the annual meeting of this guild, held on March 19th, at the London Mansion House, under the presidency of the Lord Mayor, appeal was made on behalf of an educational fund to assist the children of the beneficiaries of the Fund and also for the endowment of a hostel in London for necessitous widows and children on the books of the guild. For the hostel fund some £8000 to £10,000 are required. Lady Barrett made the interesting suggestion that kind-hearted people might undertake to become fairy godparents to individual children, and Miss Lillian Braithwaite said that as money was being squandered so recklessly in these days the necessary funds for the hostel ought to be forthcoming in a few weeks. No charity supplies a greater need than the Royal Medical Benevolent Fund, and the Guild not only relieves distressed members of the medical profession, who in caring for the lives of others have failed to make provision for their own, but also looks after the education of their children and orphans. Lady Fripp, 19, Portland-place, London, W. 1, is now chairman of the general purposes committee.

DONATIONS AND BEQUESTS.—By will the late Lord Portman left £1000 each to the Blandford Cottage Hospital and the Royal Blind Pension Society, £500 each to the Metropolitan Convalescent Institution, the Herbert Convalescent Home, Bournemouth, and the Samaritan Hospital; £250 each to the Weymouth Eye Infirmary and the Surgical Aid Society.

THE ROLL OF HONOUR HOSPITAL FOR CHILDREN (WOMEN'S HOSPITAL FOR CHILDREN).—This hospital, which was founded in 1912 at a time when there were few infant welfare centres available and when the examination of elementary school children was impeded by the absence of any local clinics, is situated in the Harrow-road, in the centre of a district with an immense juvenile population. At present the work is being carried on in workmen's cottages provisionally adapted for the purpose, but a permanent new building is urgently needed, and while a suitable site has been obtained only £13,000 have as yet been promised or subscribed towards the building fund. The eighth annual report, dated December, 1919, states that there is always a large waiting list for admission to the wards and the out-patient attendances continually increase. The number of cases admitted to the in-patient department was 144 and the number of new cases dealt with in the out-patient department 6246, the total number of attendances being approximately 64,722. The address of the hospital is 688, Harrow-road, London, W. 10, and the bankers are the London County, Westminster, and Parr's Bank, Harrow-road.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on March 18th, with Sir Francis H. Champneys in the chair. Several midwives were struck off the roll, the following charges, amongst others, having been brought forward:—

Being in attendance at a confinement, the case being one of twins and the placenta and membranes not having been completely expelled two hours after the birth of the first child, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (3); she neglected to wash the patient's external parts with soap and water and to swab them with an efficient antiseptic solution before making the first internal examination of the patient, as required by Rule E. 8 (a), and medical aid having been sought for the patient she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a). The midwife not being scrupulously clean in every way, as required by Rule E. 2; not taking and recording the pulse and temperature of her patients at each visit, as required by Rule E. 14, not entering records of the pulse and temperature of her patients in a note-book or on a chart carefully preserved as required by Rule E. 14. Being in attendance at a confinement and the patient suffering from dangerous varicose veins with swelling and tenderness, on the day of the confinement, and continuing so to suffer, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (2). The midwife neglecting to disinfect her hands and forearms before touching the generative organs of the patient, as required by Rule E. 4, and not keeping her register of cases as required by Rule E. 24. A midwife did not give to the local supervising authority every reasonable facility to secure a proper inspection of her register of cases, her place of residence, and an investigation of her mode of practice pursuant to Rule E. 25. Being in attendance at a confinement, and the patient suffering from serious rupture of the perineum and other injuries of the soft parts, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (3). A child suffering from inflammation of and discharge from the eyes during her attendance, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5); she neglected her responsibility for the cleanliness of, and she neglected to give all necessary directions for securing the comfort of, the mother and child, as required by Rule E. 12. Two midwives were guilty of misconduct in that, being single women, they had each given birth to an illegitimate child.

An ordinary meeting of the Board was held on the following day, when there came under consideration the limit of number of cases a midwife should take in the course of a year. A letter was considered from the assistant clerk of the London County Council stating that in many cases the omissions and failures on the part of midwives to observe the rules of the Board are attributable to the fact that such midwives have undertaken more confinement cases than could be coped with, and suggesting the desirability of limiting the number of cases which a midwife should be allowed to take in the course of a year. The Board decided that in their opinion it is impossible to rule that a midwife shall not take more than a certain number of cases in the course of a year as the number of cases which can be taken without affecting the proper conduct thereof depends on factors of a varying nature, such as concentration and dispersal of cases, the normality or otherwise of the cases, the powers of endurance of the midwife, and the like. The procedure for dealing with midwives who neglect their duties is laid down by the rules of the Board, and in the opinion of the Board is sufficient for the purpose of preventing undue multiplication of cases undertaken.

University of Sheffield.—Post-graduate lectures in the Faculty of Medicine will be delivered during April, May, and June by Professor A. M. Connell and Professor A. J. Hall. The lectures will be delivered every Wednesday afternoon at 4 o'clock, and will be open to all members of the profession, free of charge.

The Osler Presentation Volumes.—The printing of the volumes that were to have been presented to the late Sir William Osler on the occasion of his seventieth birthday is at last completed. These volumes have been dispatched from America, and their arrival may be expected in a few weeks. The long delay in their appearance has been due to strikes and other disturbances in the printing and publishing trades.

Manchester Milk-supply: Improvements Suggested.—A report containing a strong indictment of the existing system of milk-supply in Manchester has been published and will be submitted to the city council next month. It recommends municipalisation of the milk distribution, and gives evidence in favour of a change in milk distribution. Contaminated milk has recently been the cause of an extensive outbreak of sore-throat in one district, of scarlet fever in another, and also of diffusion of enteric fever and diphtheria. Professor S. Delépine recently conducted an analysis of Manchester milk, and, according to the report, he found that the number of clean samples was small, and that the keeping quality of the milk was low. A large number of samples became sour after 10–14 hours' incubation at 85° F. Cow's milk, when properly collected and distributed, should remain good for over 5 hours in 80 per cent. of the cases, and for 35 hours in all cases. Of 39 samples taken from Manchester hospitals 4 per cent. contained over 1,000,000 bacteria per c.cm. Some samples from large dairies contained tubercle bacilli. If the grading system were adopted for Manchester most of Manchester's milk, so far as cleanliness is concerned, would be placed in the lowest grade. The proposal to improve matters is to buy up all the milk businesses in the city at a cost of £461,000, and to organise distribution on the following lines: 1. Establishment of county depôts. 2. Formation of city centres to which the milk could be directly consigned, and which could supply an area of convenient size. These areas would be divided into districts served by carts or dandies, and there would be only one delivery in a district. 3. Shops or dairies to be provided under skilled management, to be suitably constructed, and clean and attractive. The shops would be stocked with all kinds of dairy produce made at country depôts.

Bradford Medico-Chirurgical Society.—A meeting of this society was held at the Royal Infirmary on March 16th, and was devoted to the discussion of venereal diseases.—Dr. H. H. White read a paper entitled "A Brief Review of Venereal Diseases, with Special Reference to Modern Methods of Treatment: Some Points in Diagnosis and Some Complications." He pointed out that gonorrhœa was a most difficult disease to treat and cure. Patients rarely came early enough for it to be possible to abort it, though he had recently aborted one case with 15 per cent. argyrol twice a day for three days, followed by irrigation with potassium permanganate, and had seen other cases aborted with acriflavine. In the acute stage the best results were obtained by irrigation with potassium permanganate and sodium carbonate, prescribing an alkaline mixture and rest in bed. When the posterior urethra was affected the case was much more difficult to cure, and the prostate should then always be examined. The complications of gonorrhœa were legion, and he described them and their treatment. He also dealt with gonorrhœa in women, pointing out how difficult it was to diagnose clinically; he described its treatment and pointed out that the urethra in women was a common hiding place for the gonococcus, and that this was the chief source of conveying the disease to others. He then dealt with syphilis, and said that as soon as dark-ground illumination showed the spirochæte treatment with 606 or 914 should be given forthwith. He showed the importance of not accepting an early negative Wassermann as proof that the disease did not exist.—Dr. W. Campbell read a paper on "Matters Relating to the Diagnosis of Syphilis and to the Serological Methods used in the Control of Treatment." He pointed out the various sources of error in the Wassermann reaction, and showed sera illustrating these errors. He demonstrated the necessity of titrating antigen so as just to exclude a non-specific reaction in cases of psoriasis, and pointed out the importance of examining the blood as soon as possible after its removal from the patient to prevent the serum becoming anti-complementary. The Wassermann reaction of the cerebro-spinal fluid was also dealt with. The discussion was continued by Dr. Margaret Sharp, Dr. A. F. Martin, Dr. Hambley Rowe, Dr. J. J. Buchan, and others.

Cremation Society of England.—The annual meeting of the society will be held at the Brayton Galleries, 316, Regent-street, London, W., on Wednesday, March 31st, at 3 P.M.

Colonel Sir George Hastings, M.D., has been appointed an Esquire of the Order of the Hospital of St. John of Jerusalem of England.

Yarmouth Children's Convalescent Home.—The Yarmouth Children's Convalescent Home is by no means a purely local institution, as is evident from the fact that during last year 236 of the children admitted came from London, 91 from Norwich, 5 only from Yarmouth, and 20 from various other places. A large proportion of the children from London were sent by various branches of the Invalid Children's Aid Association, which showed its appreciation of the work of the home by contributing liberally to its support. Of the 352 cases admitted during 1919 148 were discharged cured, 178 were much improved, 17 benefited, and the condition of 3 remained unaltered. Owing to the fact that the expenditure during 1919 exceeded the income by £163 16*s*. 1*d*. the committee has reluctantly decided that in future a weekly payment must be made for each child admitted.

Freemasons Hospital for Paying Patients.—The Freemasons War Hospital is being remodelled in order to provide an institution intermediate between the charitable public hospital and the nursing home with its attendant heavy expenses. Charges are to be about £3 to £3 5*s*. per week, and the patient will feel that he is paying the amount which it would or might cost a charitable hospital to maintain him. The rest will be borne by an endowment fund. The surgeons on the visiting staff are being asked to look upon the institution in the same way as they would regard an ordinary hospital, and to take small nominal contributions towards the surgical expenses, the surgeon not being brought into contact in financial matters with his patient. The same applies to the anæsthetist. Adult patients will be given a moderate amount of privacy by semi-cubicles curtained off. The nursing staff will consist of fully trained nurses, without staff nurses and probationers. The hospital will be opened at the beginning of May in the premises formerly occupied by the Chelsea Hospital for Women, 237, Fulham-road, London, S.W. 3.

London and Counties Medical Protection Society, Ltd.—The annual general meeting of this society was held at 32, Craven-street, Strand, W.C., on March 17th, Sir John Rose Bradford, the President, being in the chair. The President having made a few introductory remarks alluding to the prosperity of the society during the past year, as shown by the large number of candidates seeking election and their geographical distribution all over the country, Mr. C. M. Fegen, treasurer and chairman of council, moved the adoption of the twenty-seventh annual report and balance-sheet. He said that the council was conscious of its responsibilities in view of the increased cost of everything—salaries, legal expenses, and those of organisation—while depreciation in the value of securities had also to be reckoned with. The net depreciation for the year was somewhere in the neighbourhood of £800, but this in no way interfered with the income of the society nor with what it was hoped would be the ultimate value of the securities, as they were all gilt-edged. The finances were really extremely good, the reserve funds had crept up during the last 20 years from £1400 to £25,500, and the first thing a medical man should do on qualification was to join one or other of the protection societies—he might be excused for thinking that they should join the London and Counties Medical Protection Society, Ltd.—in order to safeguard himself. Sir Thomas Parkinson seconded the adoption of the report, and this was agreed to unanimously.

Dr. Dennis Vinrace proposed, Dr. George Crichton seconded, and it was resolved *nem. con.*:—

> That a sum not exceeding £450 be paid each year for the remuneration of the members of the council of the society attending meetings of the council, whether ex-officio or elected (except the paid officials), at the rate of 1 guinea to each member of the council for each attendance at a council meeting; and such remuneration shall not include the sums paid as travelling expenses in accordance with the resolution passed at the annual meeting of the society on May 16th, 1917.

Sir John Rose Bradford was re-elected President of the society. The existing vice-presidents were all re-elected, with the addition of Sir Charles Gordon Watson. Mr. Fegen was re-elected treasurer of the society. The four retiring members of council were re-elected, with the addition of Dr. J. P. Hedley, to fill the vacancy created by the recent election of Dr. Pollock Muir as a vice-president. Dr. Hugh Woods and Mr. A. G. R. Foulerton were re-elected general and financial secretary respectively. Messrs. Duncan Belcher and Co. were re-elected auditors at a remuneration of 25 guineas. The meeting ended with a vote of thanks to the President.

Appointments.

BEAUMONT, G. E., D.M. Oxon., M.R.C.P., D.P.H., has been appointed Assistant Physician to the Middlesex Hospital.

GEBBIE, N., M.B., Ch.B., D.P.H., Assistant Medical Officer of Health, Ilford Urban District Council.

HOBHOUSE, E. W. N., M.B. Oxon., M.R.C.P., Physician to Out-patients, Victoria Hospital for Children, Tite-street.

SHERA, J. E. P., M.D., L.R.C.P., Medical Superintendent, Somerset and Bath Asylum.

SYMONDS, C. P., M.A., M.D. Oxon., M.R.C.P., Assistant Physician for Nervous Diseases Guy's Hospital.

Certifying Surgeons under the Factory and Workshop Acts: **WILLMOTT**, C. M., L.R.C.P. & S. Edin. (Leyland); **TYLOR**, C., M.D. Camb. (Long Melford); **MILLER**, R. (Stock); **DAVIDSON**, H. A. C., L.R.C.P. & S. Edin. (Coupar Angus); **YULE**, R. M., M.D. Aberd. (Lerwick); **GASTEEN**, H. D., L.R.C.P. & S. Irel. (Gamlingay); **ANDREWS**, J. A., M.B., B.C. Camb. (Bovey Tracey); **SEAL**, P. H., M.B., B.S. Lond. (South Molton); **HART**, J. D., M.B., Ch.B. Glasg. (North Walsham); **GILMOUR**, R. T., M.R.C.S., L.R.C.P. Lond. (Maidenhead).

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—Jun. H.S. £150.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75 respectively.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170.

Bradford City.—Medical Woman for Ante-natal Work. £500.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

British Guiana.—Asst. M.O. £400.

Burnley, Victoria Hospital—H.S. £250.

Burton-on-Trent Infirmary.—H.S. £200.

Carlisle City.—Female Asst. M.O. £500.

Central London Ophthalmic Hospital, Judd-street, W.C.—H.S. £50.

Derby, Derbyshire Royal Infirmary.—Oph. H.S. £200.

Derbyshire Education Committee.—Sch. Dentist. £450.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dublin, Central Midwives Board for Ireland.—Examiners in Midwifery.

Glasgow, Bellahouston Hospital.—Res. M.O. £250.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 respectively.

Gravesend Hospital.—H.S. £200.

Greenwich, Metropolitan Borough.—Asst. M.O.H. and M.O. for Tuberculosis Dispensary. £700.

Hereford County and City Mental Hospital.—Second Asst. M.O. £350.

Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. 30 guineas.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Res. Med. Supt. £200. Also Asst. Cas. M.O., H.P., and H.S. £50 each.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—S.

Huddersfield Royal Infirmary.—Assist. H.S. £150.

Italian Hospital, Queen-square, W.C.—Hon. Asst. Anæsth.

Leamington, Warwickshire and Coventry Joint Committee for Tuberculosis.—Asst. Tuberc. O. £500.

Leeds Public Dispensary.—Res. M.O. £200.

Liverpool Education Committee.—Two Asst. Sch. M.O.'s. £350.

Liverpool, Stanley Hospital.—Two H.S.'s. £150.

London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Anæsth. £50. Also Asst. Surg.

Macclesfield General Infirmary. Res. H.S. £200.

Manchester, Ancoats Hospital.—Res. Surg. O. £200.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res. M.O. £350.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.

Miller General Hospital for South-East London, Greenwich-road-London, S,E.—Hon. S.

Monmouthshire County Council.—Pathol. and Bacteriol. £750. Also Female Asst. M.O. £500.

Mothers Hospital, 153-163, Lower Clapton-road, Hackney, E.—Res. M.O.

Mount Vernon Hospital for Consumption and Diseases of the Chest, Fitzroy-square, W., and Northwood.—Two Hon. Radiologists.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Hon. Asst. P.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Gynæcologist.

Newark Hospital and Dispensary.—Res. H.S. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham General Hospital.—Cas. H.S. £150.

Paddington Green Children's Hospital, London, W.—S. and P.'s. Also H.P. and H.S. £150 each.

Perth Royal Infirmary.—H.S. 6 guineas per week.

Plymouth, Borough of.—Tuberc. O. £500.

Prince of Wales's General Hospital, Tottenham, N.—H.P. and H.S. £200 each. Also Jun. H.P. and Jun. H.S. £120 each. Also Two Hon. Asst. P.'s.

Queen Mary's Hospital for East End, Stratford, E.—H.P.

Reading, Royal Berks Hospital.—H.S. £200.

Redhill, Surrey, Royal Earlswood Institution.—Asst. M.O. £400.

Royal London Ophthalmic Hospital, City-road, E.C.—Refraction Asst. £100.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. £200.

St. John's Hill Infirmary, St. John's Hill, Wandsworth, S.W.—Temp. Asst. M.O.

St. Mary's Hospital for Women and Children, Plaistow, E.—S. £100.

St. Thomas's Hospital.—Two Sen. Asst. M.O.'s. £600. Also Two Jun. Asst. M.O.'s. £350. Also Bacteriol. £600.

Salford Royal Hospital.—Res. S.O. £250. H.S. £150.

Sheffield Royal Infirmary.—Hon. Radiologist. £100. Also H.S. and Res. Anæsth. £150 each.

Shirlett, near Much Wenlock, King Edward VII. Memorial Sanatorium.—Res. Med. Supt. £450.

South London Hospital for Women, South Side, Clapham Common, S.W.—Asst. P.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Stockport Infirmary.—Jun. Res. M.O. £200.

Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.

Straits Settlements and Federated Malay States.—Thirty-three M.O.'s. $440 per month.

Sunderland Royal Infirmary—Jun. H.S. £200.

Sunderland, Royal Infirmary, Children's Hospital.—Female Jun. Res. M.O. £150. Also Visiting M.O. £300.

Surrey County Council.—Asst. M.O.H. £600.

Swansea General and Eye Hospital.—Jun. H.S. £200.

Swindon, Borough of,—Asst. M.O.H. £650.

Throat Hospital, Golden-square, W.—Surgical Registrar.

Tiverton, Devon, Hospital.—H.S. £100.

University College Hospital, Gower-street, W.C.—Cas. M.O. £150. And Second Hon. Clin. Asst.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Radiologist. £25.

Wakefield General Hospital.—Jun. H.S. £200.

West London Hospital, Hammersmith, W.—Asst. Anæsth.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Non-res. H.S. £100.

Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Tipperary.

Births, Marriages, and Deaths.

BIRTHS.

BRUCE.—On March 22nd, at a Nursing Home, the wife of Olliver Bruce, M.R.C.S., L.R.C.P., of Cromwell-crescent, S.W., of a son.

EVANS.—On March 16th at Princes-avenue, Hull, the wife of Harry Loft Evans, M.R.C.S., of a daughter.

LOCK.—On March 18th, at Barnfield-crescent, Exeter, the wife of Norman F. Lock, F.R.C.S., of a daughter.

TAYLOR.—On March 17th, at Glenloch-road, Hampstead, to the wife of Charles Joseph Taylor, M.D., of Nuneaton—a son.

MARRIAGES.

COOPE—HUTCHINGS.—On March 20th, at Frodsham Parish Church, Robert Coope, M.D., to Rosalind Hutchings, of Hillsboro', Frodsham.

MIDDLEWEEK—CROSSLEY.—On March 22nd, at Duffield Church, Derbyshire, Frederick Francis Middleweek, L.R.C.P., L.R.C.S., late Major, R.A.M.C., to Lillie Marie, widow of Bertram J. F. Crossley, Captain, Sherwood Foresters.

VEY—WINGATE.—On March 4th, at St. Jude's, Southsea, Surgeon-Lieutenant F. Hamilton Vey, R.N., to Emily Hilda, third daughter of the late Captain G. M. Wingate and Mrs. Wingate.

DEATHS.

ELLIOTT.—On March 22nd, at Riviera, Brixham, George Blacker Elliott, L.R.C.S. & P. Irel., Major, R.A.M.C., aged 55.

EVANS.—On March 15th, suddenly, at Albion-street, Hull, Thomas Melancthon Evans, M.R.C.S., aged 82.

WRIGHT.—At Old Orchard, Sidmouth, on 23rd March, 1920, George Arthur Wright, B.A., F.R.C.S., Lieutenant-Colonel, R.A.M.C. T.F., Emeritus Professor of Surgery and late Administrator 2nd Western General Hospital, in his 69th year.

N.B —A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Medical Diary.

SOCIETIES.

TUBERCULOSIS SOCIETY, at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 29th.—8 P.M., Discussion on the Symptomatic Treatment of the Advanced Case, opened by Dr. Batty Shaw.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

SATURDAY, March 27th.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients.

MONDAY, March 29th.—2 P.M., Dr. G. Stewart: Medical Out-patients. 2 P.M., Mr. D. Armour: Operations.

TUESDAY.—10 A.M., Dr. McDougal: Electrical Department. 2.30 P.M., Mr. T. Gray: Operations.

WEDNESDAY.—10 A.M., Mr. Banks Davis: Operations of the Throat, Nose and Ear. 2 P.M., Mr. Gibb: Eye Department.

THURSDAY.—2 P.M., Mr. MacDonald: Surgical Out-patients. Mr. B. Harman: Eye Department.

FRIDAY.—2 P.M., Dr. Pritchard: Visit to Medical Wards. Dr. Pernet: Skin Department.

Daily:—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, March 31st.—4.30 P.M., Dr. Gosse: Difficulties in Diagnosis.

LORD MAYOR TRELOAR CRIPPLES' HOSPITAL, Alton, Hants. Post-Graduate Classes in Surgical Tuberculosis, conducted by Sir Henry Gauvain, M.C.

MONDAY March 29th.—The Course will commence. Daily Demonstrations in the Wards. Practical Work performed in the Plaster Room, Theatre and X Ray Room.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, March 30th.—4.30 P.M., Lecture:—Dr. W. E. Fothergill: Gynæcological Diagnosis.

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Sussex County Hospital.

THURSDAY, April 1st.—4 P.M.. Clinical Demonstration.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., London and New York.

Medicine and the Allied Sciences. By S. Fomon, M.D. Vol. I.: Bacteriology, Pathology, Physiology, Chemistry, Anatomy. Pp. 612. Vol. II.: Hygiene, Practice of Medicine, Surgery. Pp. 624. Vol. III.: Obstetrics, Gynecology, Diseases of the Eye, Skin, Ear, Nose, Medical Jurisprudence, Materia Medica and Therapeutics, State Questions, Key and General Index. Pp. 117. £5 10*s*. per set.

Bodily Changes in Pain, Hunger, Fear and Rage. By W. B. Cannon, M.D., C.B. Pp. 311. 15*s*.

ALLEN, GEORGE, AND UNWIN, London.

The Work of V.A.D. London I. during the War. Edited by Stanley Unwin. Pp. 96. 5*s*.

Two Sisters. By R. H. Bretherton. Pp. 298. 7*s*. 6*d*.

ARMSTRONG, H. H., Olney, Bucks.

The Romance of the Lace Pillow. Being the History of Lace-making in Bucks, Beds, Northants, and Neighbouring Counties, together with Some Account of the Lace Industries of Devon and Ireland. By Thomas Wright. Pp. 271. 7*s*. 6*d*., 12*s*. 6*d*., and 21*s*., according to binding.

ARNOLD, EDWARD, London.

Legal Chemistry and Scientific Criminal Investigation. By A. Lucas, F.I.C. Pp. 181. 10*s*. 6*d*.

BAILLIÈRE, J. B., ET FILS, Paris.

Quatre Leçons sur les Sécrétions Internes. Par E. Gley, Professeur au Collège de France. Pp. 160. 6 fr.

Origine, Evolution et Traitement des Maladies Chroniques non Contagieuses. Théorie de l'Immunité, de l'Anaphylaxie et de l'Anti-Anaphylaxie. Par J. Danysz, de l'Institut Pasteur. Pp. 132. 5 fr.

BAILLIÈRE, TINDALL, AND COX, London.

A Text-book of Ophthalmic Operations. By H. Grimsdale, F.R.C.S., and E. Brewerton, F.R.C.S. 2nd ed. Pp. 438. 18*s*.

Marine Hygiene and Sanitation. By G. E. Brooke, Chief Health Officer, Straits Settlements Medical Department. Pp. 409. 15*s*.

BELL, G., AND SONS, London.

The Social Worker. By C. R. Attlee, M.A. Pp. 286.

The Physiology of Vision, with Special Reference to Colour Blindness. By F. W. Edridge-Green, M.D., F.R.C.S. Pp. 280. 12*s*.

The Edridge-Green Card Test for Colour Blindness. 25*s*.

BLACK, A. AND C., London.

Mediæval Medicine. By J. J. Walsh, K.C.S.G., M.D. Pp. 216. 7*s*. 6*d*.

BUTTERWORTH AND CO., London, Canada, Australia, and India.

Personal Hygiene. By M. R. Samey, M.D., M.O.H. Pp. 96. Rs.3.

CAMBRIDGE UNIVERSITY PRESS, London, Cambridge, and Edinburgh.

Drapers' Company Research Memoirs. Biometric Series X. A Study of the Long Bones of the English Skeleton. By Karl Pearson, F.R.S., and Julia Bell, M.A. Part I.: The Femur, Text, and Atlas. 30*s*. Part I., Sec. II.: The Femur of Man, with Special Reference to other Primate Femora, Text, and Atlas. £2.

CHURCHILL, J. AND A., London.

Laboratory Manual of Elementary Colloid Chemistry. By Emil Hatschek. Pp. 131. 6*s*. 6*d*.

ELECTRICAL PRESS, LTD., Fisher-street, London.

Spring Songs. By T. G. W. Henslow, M.A. Pp. 56. 1*s*. 6*d*.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

A Manual of Elementary Zoology. By F. A. Borradaile, M.A. 3rd ed. Pp. 616.

GIARD, M., AND E. BRIÈRE, Paris.

L'Individualisme. Par A. M. Pelletier. Pp. 120. 3 fr.

GURNEY AND JACKSON, London.

Entomology for Medical Officers. By A. Alcock, F.R.S. 2nd ed. Pp. 380. 18*s*.

HEFFER, W., AND SONS, Cambridge.

Practical Histology. By Prof. J. N. Langley, Sc.D., F.R.S. 3rd ed. Pp. 320. 10*s*. 6*d*.

LANE, JOHN, London and New York.

Domus Doloris. By W. C. Leith. Pp. 222. 7*s*. 6*d*.

MACMILLAN AND CO., London.

Alcohol and the Human Body. By Sir Victor Horsley, C.B., and Mary D. Sturge, M.D. Lond. 6th ed. Pp. 338. 6*s*.

MASSON ET CIE., Paris.

La Physiologie. Par Maurice Arthus, Professeur de Physiologie à la Faculté de Médecine de Lausanne. Pp. 430. 10 fr.

La Médecine. Par H. Roger, Doyen de la Faculté de Médecine de Paris. Pp. 400. 10 fr.

Physiologie normale et Pathologique des Reins. Par L. Ambard, Professeur à la Faculté de Médecine de l'Université de Strasbourg. Avec une Préface du Pr. Legueu. 2nd ed. Pp. 368. 18 fr. net.

Communications, Letters, &c., to the Editor have been received from—

A.—American Relief Administration European Children's Fund, Lond.; Anglo-Hellenic League, Lond.: Mr. W. Appleyard, Bradford; Prof. J. G. Adami, Liverpool; Right Hon. C. Addison, M.P., Lond.; Association of British Chemical Manufacturers, Lond.

B.—Dr. H. Brown, Lond.; Dr. W. B. Baker, Long Island, New York; Mr. N. H. M. Burke, Lond.; Dr. J. L. Brownlie, Glasgow; Mr. J. Burns, Edinburgh; Dr. H. K. Brade-Birks, Salford; Dr. W. M. Browdy, Manchester; Mrs. C. Brereton, Lond.; Capt. H. L. Barker, I.M.S.; Messrs. Baillière, Tindall and Cox, Lond.

C.—Chadwick Trust, Lond.; Mr. W. Clarke, Geneva; Chicago School of Sanitary Instruction; Mr. W. H. Clayton-Greene, Lond.; Mr. C. W. Cunnington, Lond.; Central Aircraft Co., Lond.; Sir F. Colyer, Lond.; Dr. C. Coombs, Bristol; Dr. F. G. Cawston, Durban; Dr. F. E. Chidester, Morgantown, West Virginia; Mr. E. M. Corner, Lond.; Dr. J. H. Chaldecott, Lond.: Mrs. Cawse, Lond.; Child Study Society, Lond.

D.—Dr. S. C. Dyke, Gosforth; Dr. H. B. Day, Cairo; Dr. J. Dennis, Albuquerque.

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Notes, Short Comments, and Answers to Correspondents.

ARMY HYGIENE IN THE FUTURE.[1]

BY SIR JOHN GOODWIN,
DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

AFTER explaining the organisation of the Directorate of Hygiene, which is on such a basis as easily to be expanded in the event of war, Sir John Goodwin indicated some of the main military problems of the future. These include :—

(a) *The control of physical training.*—In the services physical training has been a subject of considerable medical interest, and promises to be more so. A number of selected officers are detailed for special training in this branch of activity, and a very complete and satisfactory programme has been evolved. The aim has always been to improve individual physique by physical and recreational training, and to establish character and esprit de corps in the process. The physical training does not seek to produce muscular development in individuals, so much as active, supple, and physiologically fit men; while the importance of recreational training in its relation to physique, character, and morale cannot be overstated. Recreational training implies the participation of every individual, not the production of a few experts to be placidly watched by their inactive fellows. In the war elaborated recreational training schemes and widely competitive contests in all forms of athletics were used to counter the inevitable mental depression and physical stagnation of troops coming out of trenches or sailors condemned to wait expectantly on ships at sea. The value of dancing in this connexion is not to be slighted.

(b) *The prevention of skin affections.*—This is a question of the utmost importance. During the war there was an unnecessary wastage from pediculosis, scabies, and their various sequelæ—trench fever, pyodermia, and so forth. Not less important than improved personal hygiene is the organisation of changes of clothing, disinfection and disinfestation, of baths and laundries. A definite scheme to cover these questions is essential, and the question will in time no doubt come under the survey of the civil health authorities as well.

(c) *Spacing out in barracks and in transports* is another subject which is receiving attention stimulated by the unfortunate epidemics of cerebro-spinal fever and influenza of recent years. The army has always had enlightened views on this subject, and a fair standard (600 cubic feet per man in barracks) of space has been insisted on. The head-to-head space between individuals has been considerably increased both in barracks and hospitals overseas, and also, so far as the peculiar conditions permit, on board ships.

(d) *Improving the "domestic" conditions of troops* and of their families. Under this heading is implied the improvement of barracks and married quarters in respect of heating, lighting, ventilation, the provision of baths, and so forth, in order to render troops as comfortable as possible. Contented men are better soldiers, and the soldier is entitled to such modern civilised conveniences and sanitary devices as funds permit. His financial status, his food, clothing, and medical care have all been duly considered. In similar fashion his "home" is worthy of our best efforts.

The army is generally looked upon as consisting of men only, and the fact that the officers of the Royal Army Medical Corps are responsible for the care and welfare of the soldiers' wives and families is not generally realised.

The Immediate Aims of the Directorate of Hygiene.

These include :—

(a) *The maintenance and improvement of the sanitary instinct of the troops* and the development of the "health habit." This can be brought about in part by precept and discipline, but is essentially dependent on intensifying the educational campaign. Publicity methods are required, propaganda, cinematograph pictures and lantern demonstrations to visualise and bring home what otherwise would be merely theory; these are what we hope to achieve, and such a campaign undertaken in similar fashion in the community at large would, I believe, be all to the good. To carry out these projects in the army, it is intended at once to establish schools in commands where, under the ægis of the Deputy Assistant Director of Hygiene, the latest sanitary knowledge will be instilled as widely as possible into classes of officers, non-commissioned officers, and men of all units in the vicinity. In the United Kingdom alone there will be six of these command schools.

(b) *The improvement of the scientific knowledge of officers of the hygiene service* and of army medical officers as a whole, so that they may keep abreast of the advance of knowledge of the day. The importance of trained specialists in hygiene, in tropical medicine and parasitology, in physiology and bio-chemistry, and allied subjects has long been recognised, and the army is fortunate in having at the Royal Army Medical College in London branches which are devoted to training officers on these lines. Every officer of the Royal Army Medical Corps, apart from his initial course of instruction on military subjects on entry, is required, prior to promotion to the rank of major, to go through a nine months' course at the College, where he has, in addition to those general subjects which all officers must study, the option of selecting a special subject for intensive study both at the College and at the large hospitals throughout London. In addition to the College, however, should be mentioned the School of Entomology and the School of Hygiene, where officers have opportunities for revision courses, and, furthermore, the attachment to universities, research institutes, &c., of selected officers detailed to study certain branches of work under experts of known skill. In this way we are building up a service which will, it is hoped, include members skilled in all branches of medical and the allied sciences, and able to devote their knowledge as required to army problems.

The Relations Between the Preventive Medicine Service of the Army and of the Civil Community.

In the past the two services have been somewhat self-contained, but the war brought them together, and definitely proved the value of joint effort. The value for ultimate good of the close coöperation between the Local Government Board and the War Office in health matters during the war can hardly be over-estimated. It is almost entirely a war development, and, let us hope, one destined to remain effective in the future. Prior to the war the few fixed camps and barracks were outside the interest of the civil sanitary authorities, but this independent working along parallel but isolated lines cannot ever recur.

It is inconceivable that the lessons learned as to the value of mutual support will ever permit of anything but the closest coördination of military and civilian hygienic practice. The experience and skill brought to the army by the service therein of many of the prominent and hard-working civil hygienists has undoubtedly been of stimulating value, while one may hope that the members of the civil profession have likewise taken away some knowledge in exchange which will be of value to them and to the civil community in the future. The army is fortunate in possessing a disciplined populace and a perfected organisation which permits of action for the community as easily as for the individual. In this way military hygiene has a strong position, and has been able to arrange for more detailed application of preventive medicine than is commonly possible elsewhere. The importance of regarding disease from the preventive standpoint is one of those incalculable, though possibly unappreciated, benefits which must play a part in the nation when the temporary army doctors are once again diffused throughout the country. In the same way the importance of laboratory diagnosis and ample laboratory facilities in the army will, one may hope, lead to more intimate relationship between practitioners, clinicians, and clinical pathologists than the somewhat restricted organisation of civil laboratories now permits. Indeed, the mobility, flexibility, and number of area laboratories in the army suggests the idea that possibly a similar system would be of value to the community as a whole. It is pleasing to note that liaison between the scientific workers of the army and the nation is as close at present as ever it was during the war. Our laboratories, for instance, are in many cases making examinations, vaccines, &c., for local health authorities and for hospitals which may be without adequate facilities, and are coöperating in the production of great quantities of influenza vaccine for the Ministry of Health. Such inter-relationship must be continued in the future.

Some Common Problems Affecting Both Services.

(1) *The hygiene of ports and ships* is a question of international importance which has been placed on a sound basis by the International Sanitary Convention recently held in Paris. The outbreaks of influenza on transports and the question of the hygiene of ships at sea are subjects for further study and coördinated action between port health officers, military embarkation staffs, and the shipping authorities generally.

(2) *The control of infectious disease* remains one of the primary functions of hygienists. Internotification between the army and the civil authorities must be continued and stardardised action in respect of troops on leave in infected areas or the control of the movements of infected troops decided on. How far the military system of pooling cases

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[1] Being an abstract of the last of three Chadwick lectures on Military Hygiene in Peace and War, delivered on March 22nd, 1920. The first and second lectures appeared in THE LANCET of March 13th and 20th respectively.

of similar type and economising hospital accommodation is applicable to the decentralised civil system is uncertain, but recent agitation in respect of the lack of hospital beds suggests consideration of the question.

(3) *Housing.*—The common aim is to provide homes with the healthiest environment, ventilation, lighting, warming, &c., and the associated questions of latrines and baths. Undoubtedly there is room almost everywhere for improvement under these headings.

(4) *Maternity and child welfare.*—This, again, is a national question of the first importance, and one which is now also receiving consideration by the army authorities. In this connexion, too, must be mentioned the importance of antenatal treatment of venereal disease. There would appear no reason to doubt that an intensive effort would effect an enormous diminution of specific infection.

(5) *Research* in all sanitary problems must be continued. Even now the treatment of water, or of sewage, the methods and practice of disinfection, and so forth, are all amenable to improvement economically, if not in actual results. It is interesting to note the gradual development of the process of chlorination of water-supplies in large communities, in view of its standardisation in army practice.

(6) *The maintenance of the liaison* is dependent in part on the close relations between the Army Directorates of Hygiene and Pathology and the Ministry of Health; on the Hygiene Advisory Committee of the army, which contains members of the highest standing in the civil community; and on the various assistant directors of hygiene of commands keeping in close touch with the medical officers of health in their areas.

So that in summing up my views I would say that, in my opinion, the future prosperity and success of our nation depends to an incalculable extent on the improvement of the physical and mental standard of all members of the community; it must not merely be—as I am afraid it has been to a considerable extent in the past—a case of "survival of the fittest," but rather a perfection of every method by which mortality may be decreased, by which the production of unfits may be diminished, and by which the standard of fitness as regards man, woman, and child may be raised.

COLONIAL HEALTH REPORTS.

Cyprus.

ACCORDING to a report recently presented to Parliament on the Blue-book for 1918–19, the estimated population of Cyprus is now 306,997. In 1918 the birth-rate was 31·3 per 1000, and the death-rate 26·1 per 1000, as compared with rates of 27·9 and 18·8 respectively in 1917. The death-rate per 1000 of children under 1 year of age was 149·4 per 1000 in 1918, as compared with 124·0 in the previous year. The increased death-rate is attributable to some extent to an influenza epidemic which occurred towards the end of the year, but it is still somewhat difficult to obtain accurate information as to the causes of death and consequently to account for variations in the death-rates. Apart from the influenza epidemic there was no outbreak of serious infectious or contagious disease, and the public health and general sanitary condition of the island have been satisfactory. The colony again enjoyed complete immunity from plague, cholera, and typhus, although these diseases prevailed in the neighbouring countries.

The antimalarial campaign, which was commenced in 1913, has been carried out on the lines laid down in the report by Colonel Sir Ronald Ross, K.C.B., F.R.S., who visited the island in that year. The malarial incidence has fallen steadily from 10,035 cases in 1912 to 2414 in 1918. The spleen census shows a decrease from 17·2 per cent. in 1913 to 5·1 per cent. in 1918, and this may be taken as a most satisfactory index of the success of the antimalarial campaign.

During the year 1127 patients were admitted and received treatment in the wards of the Nicosia General Hospital, an increase of 51 on the previous year's total. The death-rate was 6·1 per cent., as compared with 5·6 per cent. in 1917. The work in the maternity wards continues to be very satisfactory. The training of native midwives is an important part of the work carried out in this branch of the institution, and 6 of these were trained and granted certificates during the year, bringing the total number trained since the wards were opened to 33. The out-patients' department was again well attended, affording relief to 8038 cases. To the district hospitals of Larnaca, Limassol, Famagusta, Paphos, and Kyrenia 2004 patients were admitted, as against 1444 in the previous year. In addition, 12,601 persons were treated at the out-patients' department. 14,515 patients also received relief during the year at the Government rural dispensaries. There were only 4 admissions to the leper farm during the year, and 7 deaths occurred. The number of inmates at the close of the year was 79, which is the lowest on record. The beneficial effects of segregation are now being experienced. Two births occurred among the inmates during the year, bringing up the number of children in the home set apart for the offspring of lepers to 11; all of them remained free from the disease. One boy who had reached the age of 18, being free from all signs of disease, was discharged from the home.

Falkland Islands.

The official report for 1918 gives the estimated population as 3252 (2270 males and 982 females), being 43 to the square mile. The birth-rate for the year was 18·13, and the death-rate 6·15 per 1000. The health of the colony has continued to be uniformly good. The climate is healthy but rigorous. To those indisposed to pulmonary or bronchial affections the weather conditions, though seldom pleasant, are at least innocuous. High winds blow almost constantly by day throughout the year, and to this may be attributed the almost entire absence of trees in the islands. There is, however, no scarcity of sunshine, compared with that experienced in the United Kingdom, and were the cold winds less continuous and trying there would be many days when the weather might almost be described as "hot." The difference between one extreme of temperature and the other is not considerable, the thermometer registering between 30 and 50° F. in winter and between 40° and 65 in summer. The rainfall in Stanley for the past few years has averaged about 27 in. per annum; rain fell on 234 days in 1917, and on 240 in 1918.

HEALTH IN BENGAL JAILS, 1918.

THE average number of prisoners daily accommodated in the jails of Bengal Presidency in 1918 was 16,761, of whom 216 were females. The total number received during the year was 83,207, of whom 1941 were females. The number of admissions was less than in 1917, but the average daily strength was increased by 832. This increase has been going on for several years, and has led to overcrowding. Of the convicts admitted 59·5 per cent. were Mohammedans and 35·8 Hindus.

Elementary Training of Juvenile Prisoners.

Most excellent work is carried out in the Juvenile Jail at Alipore, where there was a daily average of 200 boy prisoners, the number received during the year being 398 convicts and 104 under-trial detentions. At the end of 1917 a school was started for the physical and moral training of the inmates. They are taught reading and writing in elementary English and Bengali for the Bengalis, and in Hindi and Urdu for the up-country boys, with simple arithmetic and freehand drawing. About 95 per cent. of the boys admitted are illiterate, but they learn willingly and get on well. They go through a course of gymnastics and physical drill, and play football. "More than half the population gained weight, and almost all were cheerful, happy, and looked smart." Attention is also paid to their moral and religious instruction. The number of offences diminished: only 29 needed "major punishment," and no corporal punishment at all was required throughout the year.

An after-care association has been formed in Calcutta to assist discharged prisoners. Sir Walter Buchanan, K.C.I.E., Inspector-General of Prisons, who presents this report, refers to the efficient carrying out of the changes, and inauguration of a system of education for the youthful inhabitants by Major M. Galvin, I.M.S., and mentions the excellent work of the jailer, Babu A. K. Chaudhury, who takes a fatherly interest in the boys and their future welfare. They are employed in various industries likely to be useful to them on their discharge, such as printing, carpentering, weaving, &c. But the most important is the manufacture of quinine tablets. On an average 65 boys were employed at a time, and during the year 15,643 lb. of quinine sulphate were made up ready for use. This industry and other manufactures (carpentry, book-binding, &c.) resulted in a profit of 113,159 rupees. The average earning per head for the year was 572 rupees, or 47 rupees per month. At the Presidency jail there is a jute mill and a workshop where furniture, iron bedsteads, cooking ranges, &c., are manufactured, which resulted in a profit of 50,000 rupees. At Rajshahi jail the profit on manufactured articles was 89,000 rupees. In all jails prisoners are employed at their own trades or taught a useful calling of one sort or another, so that on discharge they can make a fresh start.

In regard to dietary, the use of wheat at one meal in place of rice has grown more popular. In comparison with prisoners taking rice at both meals it was found that with rice-eaters (on the habitual Bengali diet) 51·56 per cent. gained and 23·10 lost weight, while 25·90 per cent. suffered from bowel complaint. With the mixed diet 56·36 per cent. gained and 20·84 lost weight, and only 18·13 per cent. suffered from bowel complaint.

Ratios of Admissions to Hospital.

The admissions to hospital in the various jails in Bengal were at the average rate of 1462·7 per 1000, the average daily sick 57·4 and the deaths 21·3 per 1000; these ratios are all higher than those of recent years, chiefly due to influenza and consequent respiratory affections. Only 24 cases of cholera occurred, with 9 deaths; 10 of the cases were admitted at Khulna, ascribed to arrival of infected prisoners from Satkhira subjail, which was in an insanitary condition. Influenza caused 3426 admissions, of which 2675 were in July and August. The total deaths (including those from influenza-pneumonia) were only 53. Tuberculosis caused 205 admissions to hospital and 54 deaths, an increase on the figures of 1917 (169 and 37), due to influenza. Malaria caused 5172 admissions and 19 deaths (368·4 and 1·3 per 1000), almost the same as in 1917 (5127 and 19). At Chittagong jail, with an average strength of 200 prisoners, not a single death occurred. Out of the whole number of 32,249 convicts discharged during 1918, only 23·0 per cent. lost weight, while 52·91 per cent. actually gained weight, and 24·09 per cent. neither lost nor gained. This is unimpeachable testimony to the excellence of the organisation and administration of the jails in Bengal, as well as of their general sanitary condition.

In the concluding paragraphs of his report, Sir Walter Buchanan, now on the eve of his retirement, testifies to the good work done by various subordinates, and records his opinion that a majority of sub-assistant surgeons should serve for some stated period (say five or seven years) in a jail hospital, and after this that they should be employed in other branches of the Civil Medical Department and *not* revert to the Jail Department.

EONISM.

THIS name was given by Mr. Havelock Ellis in 1913 to a form of sexual anomaly characterised by the subjects taking pleasure in behaving and dressing like the opposite sex without being sexually inverted. The term, which is comparable to that of sadism or masochism, was suggested by the well-known case of the Chevalier d'Eon. In a recent paper (*Medical Review of Reviews*, January, 1920) on the subject Mr. Havelock Ellis points out that eonism denotes more than transvestism or cross-dressing, a term introduced by Magnus Hirschfeld, of Berlin, in his description of persons who took pleasure in assuming the attributes of the opposite sex and yet were not sexual inverts and seldom tended to become inverted. The phenomenon is one of erotic empathy, to use Titchener's term, derived from admiration and affection for the opposite sex without the subject being tempted to carry the inner imitation so far as to imitate the sexual desires of the opposite sex, and so to become homosexual. A description is given of a typical case in a successful author, aged 50, who presented many qualities not found in other forms of sexual anomaly—namely, moral superiority, feebleness of the sexual impulse, and a high degree of refinement, sensitiveness, and intelligence. Mr. Havelock Ellis suggests that the real physical basis for eonism, and the related psychical peculiarities, may be some unusual balance in the endocrine system inborn, and sometimes perhaps inherited, though of a slighter degree than that present in eunuchoidism or pseudo-hermaphroiditism, which has been found associated with disturbance of the hypophysis and adrenals respectively.

NATIVE NURSES IN SOUTH AFRICA.

THE influenza epidemic of 18 months ago brought home to the public of South Africa the great need for trained native women nurses to tend their own people. A scheme has been started on the Rand for the training of native women as nurses on the same lines as Europeans. Subjected to much criticism, the scheme has so far proved a success. The originator of it is Dr. Loesser, of the Central Hospital, Crown Mines. On Feb. 28th five native female nurses were presented with certificates of competence. The girls are put through a three years' course, during which they pass examinations at intervals in order to obtain the final certificate. The only difficulty that prevents native nurses perfecting their training is the specialised nature of their experience. Some mine hospitals provide much the same class of patients as military hospitals. But it is hoped that in the future certificated nurses from the mine hospitals may be given an additional course of nursing in the Native Women's Hospital in Johannesburg now being organised. It is emphasised by the organisers of the scheme that these trained native nurses will be of great value in their own territories. It is to be remembered that they are engaged solely in nursing people of their own race, and that they are under the superintendence of Europeans. It is encouraging to note that those responsible remark on the intelligence and adaptability of native girls as nurses, and the future progress of the movement will be watched with interest.

THE METROPOLITAN WATER-SUPPLY DURING OCTOBER, NOVEMBER, AND DECEMBER, 1919.

THERE is an interesting contrast in regard to rainfall in the last three returns issued by the Ministry of Health on the condition of the metropolitan water-supply. October and November were quite dry months, the mean rainfall for the former being 1·28 inches, which is 1·97 of an inch below the average mean rainfall for that month during the previous 36 years, while the figures for the latter month showed 1·79 inches, which is 0·91 below the average over the same period. On the other hand, in December the mean rainfall was 5·00 inches, being 2·02 inches above the average of 36 years. The relation of these facts to the quality of the supply is shown in the following particulars. In October the raw river waters improved in quality according to chemical tests, and the filtered waters showed a similar improvement. Compared with the averages for 1918 both raw and filtered waters showed an advance in purity. Consistent with these results there were found fewer bacteria in the raw waters, and the filtered waters were good. In November the results of the chemical examination of the raw river waters showed deterioration, as did also some of the filtered waters. Both waters, however, showed better results chemically and bacteriologically compared with the waters taken in the corresponding period of 1918. With the increased rainfall of December the raw river waters showed a deterioration in chemical quality. The filtered waters followed suit, and both raw and filtered waters were below the standard of chemical purity of 1918. Bacteriologically, however, the waters from both sources, raw and filtered, contained fewer bacteria than those samples collected in the same period in 1918. These variations are of interest in relation to the volume of flow measured at the weirs, which is, of course, dependent upon rainfall.

UNSAFE STREETS.

THE need for the Safety First campaign is clearly shown by the Government return, just issued, of the street accidents in England and Wales. The year 1919 has a sinister precedence over 1918, the figures being 33,456 and 45,544 respectively. The mechanically propelled vehicle—in other words, reckless motor driving—was responsible for 1741 of the 2239 fatal accidents, an increase of 25 per cent. over the 1918 figure. Horse-drawn vehicles were responsible for 356 deaths, as compared with 382 in 1918. The deaths from "push-bike" accidents numbered 142, as against 105 in the previous year. In the Metropolitan Police district there were 19,685 accidents, of which the City of London contributed 727. Some accidents there must needs be—cautious pedestrians sometimes collide with each other—but a large part of this huge toll of life and limb is plainly avoidable and should be avoided.

A HIGHER STANDARD OF DYING.

THE post-bellum cry for a higher standard of living has evidently penetrated now to the South African native. At any rate he is agitating for a higher standard of burial. Trouble is reported from Germiston, a Rand mining town, on the occasion of the funeral of three natives killed while cleaning out a municipal tank. The natives were, according to the municipal regulations, to be buried without coffins. 200 of their fellow workers strongly objected, however, to their being so interred; the funeral was thereupon held up until coffins were obtained.

DEVASTATION AND DISEASE IN POLAND.

THE Friends' Unit in Poland, having succeeded in stamping out typhus in the town of Zawiercie, is looking further afield. A committee of investigation reported on March 1st the results of their inquiries. They found the villages in the valley of the Bug very largely destroyed by the severe fighting which has passed through the streets. Typhus is rampant. Lieutenant-Colonel Dunbar, who had been through the district, told them that there was much illness and very few doctors. His last report of Hrubieszow and district included 27 cases of typhus and 4 deaths during the week. Hrubieszow is "a small, rather dirty town of about 5000 to 10,000 inhabitants." Dr. Jan Opienski, the medical officer of health, they found to be pessimistic, especially since previous appeals for help to various missions had met with no response. In one village (Miemany), in the department of Hrubieszow, practically all the houses had been destroyed and the people were living in dug-outs. In many other villages the housing accommodation was reduced to a tithe of its pre-war value. The investigating committee find medical help, both in personnel and of material, to be one of the greatest needs of this district. Other necessities include housing materials, farm implements and stock, as well as food to last until the next harvest.

A BOOK ON TREES.

THE scientific study of the tree has been somewhat neglected, and any serious contribution to the subject is, therefore, to be commended. Mrs. M. Grieve, F.R.H.S., a pioneer in the movement for cultivating in this country medicinal herbs, hitherto obtained from abroad, and principal of the Whins Medicinal Herb School and Farm, Chalfont St. Peter, Bucks, has published a timely little book entitled, "Economic Trees and Their By-Products." It is described as giving "a concise account of over 70 species of trees that readily grow in Great Britain, and which possess valuable by-products, now either neglected or entirely wasted." Different parts of the trees mentioned may be used for drugs, chemicals, and timber. In THE LANCET of Oct. 11th, 1919 (p. 655) we pointed out when referring to a new school of botany that there is still much to be discovered in the medicinal uses of the vegetable kingdom. Mrs. Grieve indicates here what might be accomplished even with the knowledge we already possess. Our indigenous and exotic trees afford a wealth of material for use in pharmacy, and in industrial processes. Further research may show that some of the drugs which we import may be supplied by home-grown trees, and the author is now engaged in growing the *Rhamnus purshianus*, or Californian buckthorn (cascara sagrada), from seed with hope of commercial success. Apart from the economic value of this book, the information which it contains will be welcomed by the student of botany and the lover of trees.

Fibula (L.R.C.P., &c.) would be grateful for any suggestions in a bad case of tinnitus aurium. F., married, age 40. Lasted six months; gradually getting worse. Seen several specialists; no relief. Threatened with nervous breakdown; almost on verge of suicide. Tried many of usual remedies without any success.

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CONTENTS.

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Two Cases of Ichthyosis Hystrix in the Same Family. By L. MEREDITH DAVIES, M.D. Oxon., D.P.H., M.O.H. and School M.O. of Cardiganshire 713

Total Inversion of the Parturient Uterus. By W. G. EVANS, L.R.C.P. Edin. 713

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Otology 714
Hunterian Society 714
West London Medico-Chirurgical Society 715
Bristol Medico-Chirurgical Society 715

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GASTRIC ULCER AND THE SURGEON 720
MILITARY AND CIVIL HYGIENE 720

ANNOTATIONS.

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Surgical Approach to the Upper Abdomen 721
Scientific Digests 722
Rubber Bands as a Substitute for Ligatures 722
Standard Condensed Milk 723
The Fate of the Feeble-minded 723
The Whereabouts of Enteric Carriers 723
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The Medical Schools of South Africa 725
The Association of Surgeons of Great Britain and Ireland 725

SPECIAL ARTICLES.

Sir Robert Morant: An Appreciation by the Rt. Hon. C. Addison, Minister of Health 726
The Physical Census.—I. 726
Medicine and the Law 727
Control of Venereal Disease 728
Tuberculosis 729
Scotland 730
Urban Vital Statistics: Vital Statistics of London during February, 1920 731

CORRESPONDENCE.

Naval Medical Memorial Fund (Surgeon Commander C. K. Bushe, R.N.) 733
Sleeping Sicknesses (Prof. Arthur J. Hall) 733
Blind Masseurs (Dr. Agnes Keen, Mr. C. Westman) 733
Women's Medical Service in India (Dr. M. I. Balfour) 734
Myalgic Pains and Manipulation (Mr. W. H. Clayton-Greene, Dr. C. G. Havell) 735
Anæsthetists' Fees (Mr. J. Henry Chaldecott) 735
A Permanent Army Dental Corps (Dr. N. Howard Mummery) 735
Paraphrenia (Dr. W. H. B. Stoddart) 735
The Cultivation of the Meningococcus (Dr. W. A. Muir)... 736
Anæsthetics and Diabetes Mellitus (Dr. O. Leyton) 736
After-Effects of Malaria (Dr. A. Hurrell Style) 736
The Genesis of Twins (Mr. R. A. Fisher) 736

THE SERVICES.

Royal Army Medical Corps.... 737
Royal Air Force 737
Indian Medical Service 737
The Honours List 737
Foreign Decorations 737
The Medical Services in Afghanistan 737
The Chadwick Gold Medals... 738
Deaths in the Services 738

OBITUARY.

Nathaniel Paine Blaker, M.R.C.S., L.S.A. 738
George Victor Perez, M.B. Lond. 738
Morgan Dockrell, M.A., M.D. Dub. 738

PARLIAMENTARY INTELLIGENCE.

House of Commons 739

MEDICAL NEWS.

Walsall General Hospital 715
Bristol Hospitals: Anonymous Conditional Gift 731
University of Cambridge: Diploma in Radiology and Electrology 742
University of Liverpool: Pass-list 742
University of Manchester 742
King Edward's Hospital Fund for London 742
Royal Medical Benevolent Fund Guild 742
Donations and Bequests 742
The Roll of Honour Hospital for Children (Women's Hospital for Children) 742
Central Midwives Board 742
University of Sheffield 743
The Osler Presentation Volumes 743
Manchester Milk-supply: Improvements Suggested... 743
Bradford Medico-Chirurgical Society 743
Cremation Society of England 743
Yarmouth Children's Convalescent Home 743
Freemasons Hospital for Paying Patients 743
London and Counties Medical Protection Society, Ltd. 743

NOTES, SHORT COMMENTS, &c.

Colonial Health Reports 747
Health in Bengal Jails, 1918 ... 747
Eonism. 748
Native Nurses in South Africa 748
The Metropolitan Water-supply during October, November, and December, 1919 748
Unsafe Streets 748
A Higher Standard of Dying.. 748
Devastation and Disease in Poland 748
A Book on Trees 748

Appointments, Vacancies 744
Births, Marriages, and Deaths 744
Medical Diary 745
Books, &c., received 745
Acknowledgments of Communications received 745

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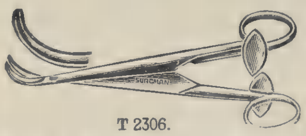
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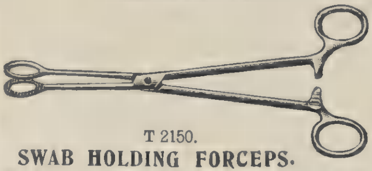
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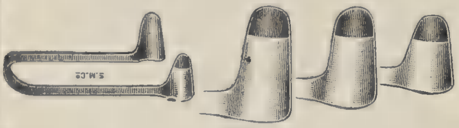
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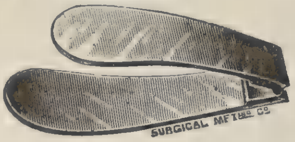
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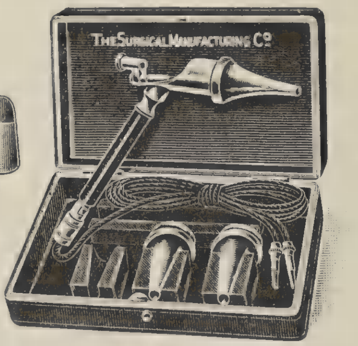

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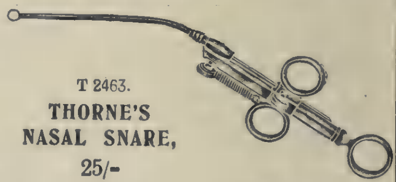
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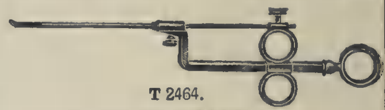
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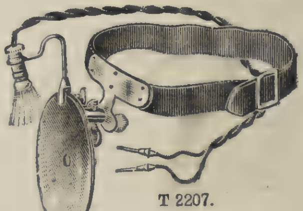
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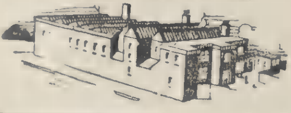
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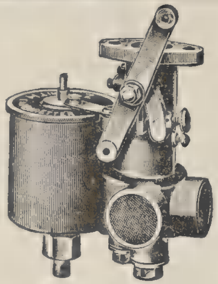

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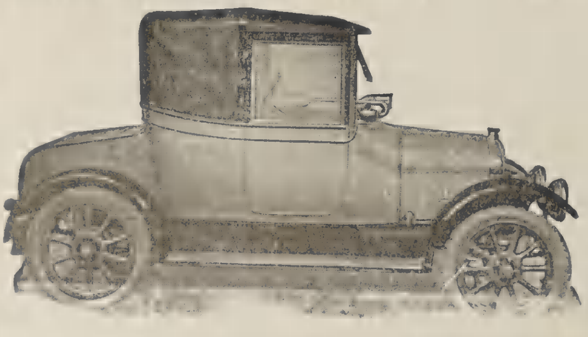

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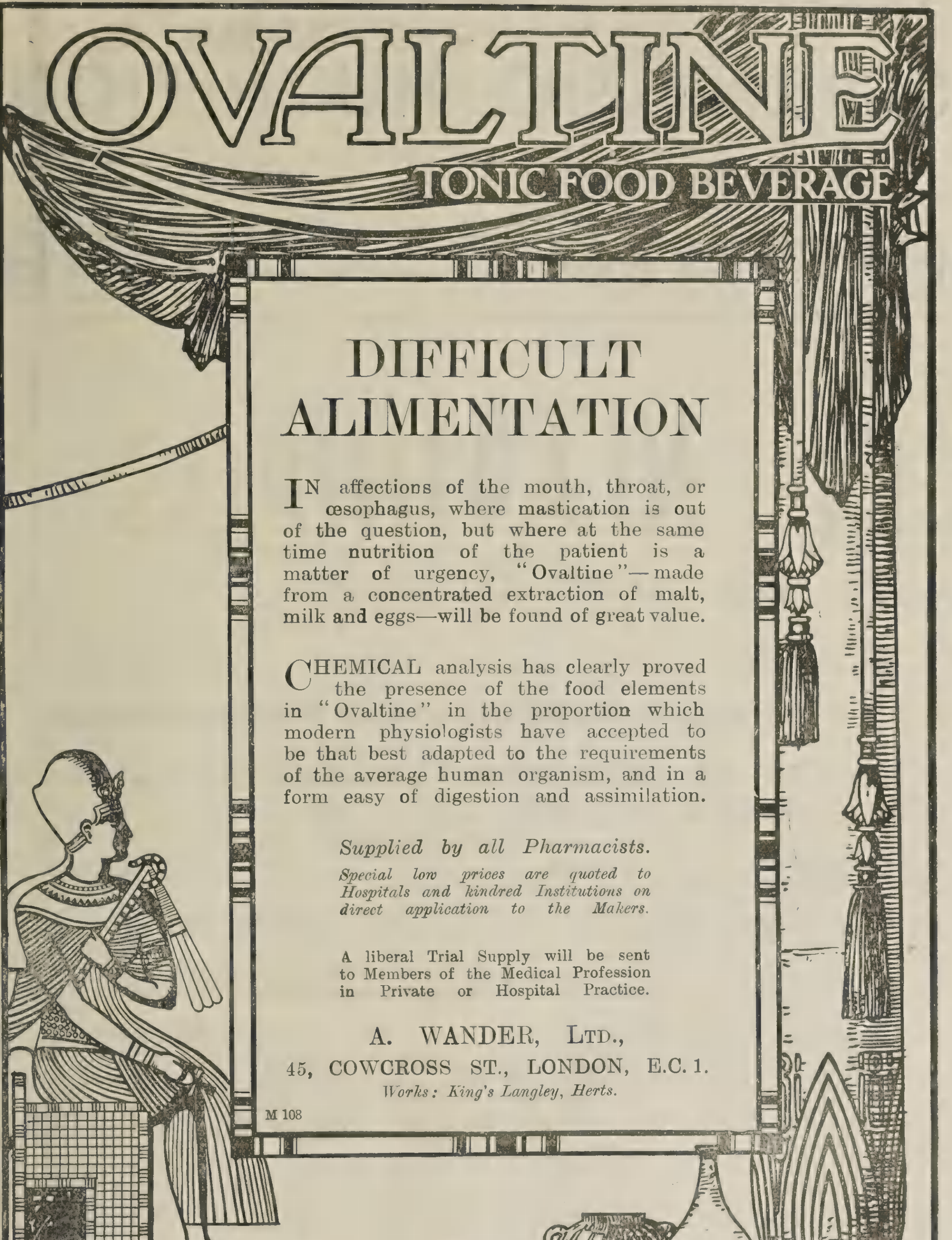

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Again, skin diseases like other diseases cannot be regarded as primarily due to the action of bacteria alone. The skin, like all other living tissues, is very well able to look after itself and can effectually deal with the invasions of microbes as long as its own health and tone is unimpaired. It is therefore evident that the good results which have followed the use of SAPON Soap in skin infections is due to the simple fact that owing to its bland qualities SAPON Soap has cleaned the lesion without irritating it, or lowering the tone and health of the tissues, which have thus been able to recover their health sufficiently to wage a winning battle with the bacteria.

¶ A free sample will be sent to any *Member of the Medical Profession in the United Kingdom.*

Patentees and Manufacturers: SAPON SOAPS LIMITED, SAPON HOUSE, LONDON BRIDGE, E.C. 4.

Glykeron and Glyco-Heroin

ARE SYNONYMOUS APPELLATIONS AND ARE NOW KNOWN AS SUCH TO ALL DISPENSING PHARMACISTS

THESE designations may now be used interchangeably by the physician when prescribing the preparation originally known only as Glyco-Heroin (Smith).

As a safeguard against having worthless imitations of the preparation dispensed, it is suggested that the physician use the name

GLYKERON

which is non-descriptive and more distinctive, when prescribing GLYCO-HEROIN (SMITH) for **Cough, Asthma, Phthisis, Pneumonia, Bronchitis, Laryngitis, Whooping-Cough, and kindred affections of the respiratory system.**

DOSE—The adult dose is one teaspoonful every two hours or at longer intervals as the individual case requires.

For children of ten years or more, the dose is from one-quarter to one-half teaspoonful; for children of three years or more, five to ten drops.

The composition of GLYCO-HEROIN (SMITH) has not been modified in the slightest degree.

MARTIN H. SMITH COMPANY

New York, U.S.A.

Sole British Agents:
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THE Vinolia Company manufacture a varied line of Gentlemen's Toilet Requisites, and their products are of the highest order. They are all British Goods made by British Labour.

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Some Preparations of
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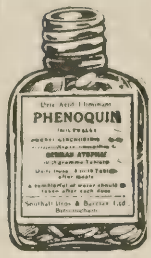

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Packed in bottles of 50 *and* 100 *tablets. Price* **6/- & 11/-**

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Antiseptic Throat Tablets

Effectively replace treatment by 'gargles' in relaxed throats and laryngeal ailments generally.

Invaluable both as a prophylactic against Influenza, Diphtheria, Tonsilitis, etc., and for public speakers, actors, etc.

In bottles containing 50 *tablets* **2/-**, *of all Chemists.*

A powerful urinary antiseptic.

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Its range of usefulness is very wide, embracing practically every infected condition of the bladder or urinary tract.

Composition: Hexamine with Sodium Acetate representing 40 per cent. of its weight of the former. In 17 gr. tablets. Taken dissolved in water.

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A well tried antiseptic in concentrated form for the use of doctors and nurses. It contains a high percentage of cresol, and is superior as a general disinfectant and deodoriser to carbolic acid.

As Lycresol forms a saponaceous solution it easily removes mucous secretions, etc., with adherent germs.

A Measuring Cup with each bottle.

Price:—4 oz. **9d.**; 8 oz. **1/3**; 16 oz. **2/3**; 32 oz. 3/6; 1 gall. tins 14/-

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VITAFER, introduced before the outbreak of war, now holds the foremost place amongst tonic foods.

It is distinguished in containing the entire protein of milk, (Lactalbumen and Casein) in being the richest in assimilable phosphorus and in being non-constipating.

A doctor's sample will be sent free and post paid to any Medical Practitioner on request.

In tins,* 1/6 & 2/6, *of all Chemists
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OF

SODIUM, AMMONIUM and LITHIUM,

indicated in cases of hypertension and in arterial pressure, and as a preventative treatment in Gout and Arterio Sclerosis.

IN POWDER AND TABLETS. *Prices and particulars on application.*

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COLLOSOLS

THE ORIGINAL COLLOIDAL PREPARATIONS FOR MEDICINAL USE.

COLLOSOLS are pure and stable colloidal solutions, isotonic and isomorphic with the elements of the body.

COLLOSOLS are tested by ultramicroscopic, bacteriological, and clinical experiment.

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This Collosol is of proved therapeutic value in Fibrositis, Arthritis Deformans, Neuritis, and in diseases of the skin such as Generalized Dermatitis, Acute Psoriasis, Acne, and Seborrhœa.

It is prepared in five different forms—for external use and bath medication, for internal administration, for injection, and as a cream, with which the affected part is gently massaged. Also as an oil for the scalp.

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This Collosol consists of Iodine in its most active form, and yet non-toxic and non-staining. It never causes nausea and rarely sets up iodism.

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COLLOSOL IODINE OIL. For Chilblains, Ulcerations, &c. Does not stain the skin. In boiling water as an inhalation for tonsilitis and bronchial catarrh.

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For the treatment of Boils, Carbuncles, and other Coccic Infections.

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COLLOSOL ARGENTUM

It is specially indicated in superficial bacterial infections such as **Gonorrhœa, Cystitis, Infective Wounds, and Diseases of Eye, Ear, and Mouth.** Also by internal administration in intestinal affections.

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In the colloidal form quinine exists as the pure alkaloid, and the liquid is faintly alkaline. When injected, either intravenously or intramuscularly, no precipitation occurs, consequently there is no interference with the normal conditions of the blood, and rapid and even diffusion takes place. Similarly, when administered orally, absorption is even and gradual, and little interference with normal conditions takes place. Dizziness, headache, and other disagreeable effects of quinine are to a large extent avoided.

The minute particles of Collosol Quinine are compatible with either acid or alkaline media, but the ideal time for oral administration is before a meal, when the stomach is not acid.

ALSO RECOMMENDED AS A SPRAY FOR NOSE AND THROAT.

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The MEDICAL PRESS & CIRCULAR (Lon. Eng.) says : " Few modern improvements in pharmacy have done so much as Benger's preparations to assist the physician in his treatment of the sick."

Benger's Food has been widely used by the Medical Profession for treating—

Diseases of the Stomach and Intestines,	**Anaemia,**
Diseases of the Blood,	**Fevers, and other Infectious Diseases,**
Tuberculosis,	**After Operations,**

and in conditions of Anorexia, Malnutrition, Gastritis, Enteritis, Appendicitis, and in Convalescence generally.

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for INFANTS, INVALIDS, AND AGED PERSONS,

may be prescribed to give the patient more or less digestive work as the condition indicates. It differs in this respect from preparations where the digestion is complete (predigested foods) and all other foods.

The composition of prepared Benger's Food is variable with the amount used, proportion of milk, or milk and water, upper milk, cream, etc., added, *and the extent of time it stands for self-digestion.* Formulæ and full particulars will be sent to the medical profession post free on application.

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N.B.—BENGER'S FOOD is the direct outcome of the pioneer work on digestive ferments, by the late Sir William Roberts, M.D., F.R.S., and the late Mr. F Baden Benger F.I.C., F.C.S. in 1880, since when it has been the premier dietetic preparation of its kind in the British Empire.

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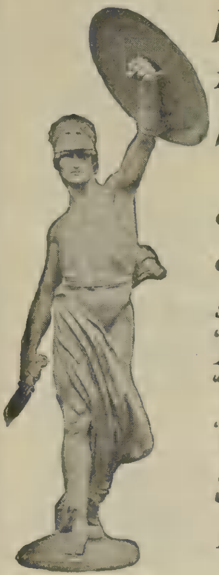
Notes on Liquid Paraffin.



THE MEDICAL MAN requires accuracy and precision in all matters of prescribing. The British Pharmacopoeia (1914) says that LIQUID PARAFFIN must have a specific gravity 0·860 to 0·890. Does this specification lead to the patient receiving an oil, or oils, of definite physical properties or known therapeutic values?

In THE LANCET (Nov. 1915) Professor R.A. Bolam of Newcastle-on-Tyne, England, quoted three cases of white oils all having this same specific gravity: 0·884 at 60°Fahr.

"A" had a viscosity or "body" of 12 times water.
"B" a viscosity of 17·2 times water.
"C" a viscosity of 2·7 times water.

So PARAFFINUM LIQ: of "884" specific gravity might mean your patient received an extremely viscous oil (17·2) or the right oil (12) or one so thin that with an ordinary dose, anal leakage would be inevitable.

This is not accurate standardization and such specifications lead to confusion.

(To be Continued)

Our Perfectly Refined pure Russian Liquid Paraffin *Russolax*

IS RELIABLE, RECOGNISED UNIFORM & STANDARDIZED.

PHARMACEUTICAL DEPT:

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DETOXICATED VACCINES

(Prepared by GENATOSAN LTD.)

IMPORTANT NOTICE.

IT is most essential, to ensure successful treatment, to employ a vaccine which is *actually detoxicated.* All Vaccines sent out by us have been detoxicated personally by the discoverer of the process.

A goodly number of the leading Venereal Experts in London, Edinburgh, Brussels, &c., are using our Detoxicated Gonococcal Vaccine, and one of them, writing in the *Practitioner,* Jan., 1920, claims that it is "the best obtainable," and marks an "extremely important advance in vaccine therapy."

Since the discovery of the detoxication of the gonococcus, the process has been applied with equal success to most of the other pathogenic organisms.

Detoxicated Vaccines (Polyvalent) are now prepared by us for:—

I. Influenza and Pneumonia.

II. Common Colds and Catarrhs—*e.g.*, Coryza and Bronchitis, &c.

III. Gonococcus Infections—(A) Pure Gonococcal Vaccine for Acute Gonorrhœa, Gonorrhœal Rheumatism, and Epididymitis. (B) Gonococcus + Secondary Organisms, for Gleet, Prostatitis, and other Chronic Gonorrhœal Infections.

IV. STAPHYLOCOCCUS INFECTIONS *e.g.*, Acne, Furunculosis, Boils, Abscesses, Osteo-Myelitis, &c.

DETOXICATED VACCINES—*(continued)*

V. STREPTOCOCCUS INFECTIONS
Abscesses, Septicæmia, Puerperal Fever, Erysipelas, Rheumatism, and Arthritic Affections, Pyorrhœa and Tonsillitis, &c.

VI. BACILLUS COLI INFECTION
e.g., Cystitis, Pyelitis and Bacilluria, Colitis, &c.

VII. TUBERCULOSIS — Limited quantities of Detoxicated Tubercle Bacillus are now available.

VIII. Cerebro-Spinal Meningitis.

These Vaccines can be given with safety not only for Prophylactic, but also for Curative Purposes. Their non-toxicity renders them *specially suitable* for administration during the course of an *acute infection.*

CURE TESTS FOR GONORRHŒA.

PROVOCATIVE VACCINE & ANTIGEN.

We are now able to supply a special form of Non-toxic Gonococcal Vaccine, which is not only of therapeutic value, but which also acts as a powerful provocative test for cure.

In addition we supply a superior form of Gonococcal Antigen for use in the Complement Fixation Test.

Particulars may be obtained on Application to

GENATOSAN LIMITED

(British Purchasers of The Sanatogen Company),
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(Chairman: The Viscountess Rhondda.)

SMOOTH

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We offer sizes 00 to 4 inclusive in plain, or 10, 20, and 30 day Chromic 60″ lengths, packed 3 tubes to a box, at 12s. per dozen tubes.

The Armour Ligatures are smooth, strong, supple, and absolutely Sterile.

No contamination has ever been found in any of the Ligatures Sterilized by the Armour Process.

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The Armour Surgical Ligatures may be boiled with the instruments or sterilized under steam pressure if so desired.

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The Ideal Form of Hypodermic Medication.

The extensive list of drugs manufactured in this form includes (boxes of 10 Sterules):—

Antimony Oxide, $\frac{1}{100}$ and $\frac{1}{50}$ gr. (In Tropical Parasitic Diseases)
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Arsamin (Non-toxic Arsenic) $\frac{1}{2}$ and $\frac{3}{4}$ gr. **4/6**
Arsenic and Iron (in two strengths) ... **4/6**
Cacodyl Co., E.P. ... **5/6**
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Emetine, 1 gr. **14/-,** $\frac{1}{2}$ gr. **7/-,** $\frac{1}{3}$ gr. ... 6/-
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Iron Citrate, $\frac{1}{2}$ & 1 gr. 4/6
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Novocain, $\frac{1}{3}$ gr., **with Adrenalin** **4/6**
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" Urea HCl, 5 c.c., 1% ... **4/6**

		5 gr.	10 gr.	15 gr.
Peptone (in Asthma).	Boxes of 5,	**7/6,**	**10/-,**	**12/-**

Phenolsulphone-phthalein, 6 mgr. **10/-**
(For testing permeability of the Kidneys)
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SODIUM CHAULMOOGRATE

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As the result of extensive investigation into the constituents of Chaulmoogra Oil, we manufacture what we term *Fractions* of Chaulmoogric Acid—the "A" fraction for internal use and the "C" fraction for hypodermic medication.

Sodium Chaulmoograte "A" Pills, 3 grain, Orig. Bots. of 3 doz. ... **2/6**
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GLASS CAPSULES OF AMYL NITRITE
W. MARTINDALE, LONDON.

MARTINDALE'S 3/- *per box.*

AMYL NITRITE CAPSULES

The promptest physiological remedy for use in **Angina Pectoris, threatened Fainting and Collapse, Hæmorrhage, Hæmoptysis,** and as an **Antidote to Chloroform.**

Full Literature on request. *Please specify MARTINDALE'S—the Original make.*

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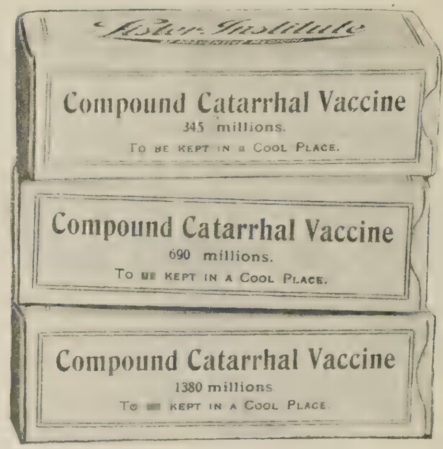
The Lister Institute

OF PREVENTIVE MEDICINE

Vaccines and Sera


Lister Institute
Compound Catarrhal Vaccine
345 millions.
To be kept in a Cool Place.
Compound Catarrhal Vaccine
690 millions.
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Compound Catarrhal Vaccine
1380 millions
To be kept in a Cool Place.

Since pure infections in catarrhal conditions of the respiratory passages are exceptional, a vaccine from five varieties of bacteria has been prepared, namely, *B. Influenzæ*, *Pneumococcus*, *M. Catarrhalis*, *Streptococcus Longus* and *Staphylococcus*. It may be used as a prophylactic or in acute infections.

Stable - Active - Reliable

Compound Catarrhal Vaccine in 3 strengths, containing 345, 690 and 1380 million organisms per c.c. respectively.

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West End House: 7 Vere Street, Cavendish Sq., W.1.
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Lister Products, which are the result of wide experience, may be relied upon to give the best clinical results.

The VOICE OF EXPERIENCE

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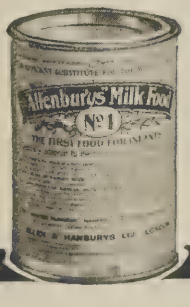
'Allenburys' Foods

	FAT	CASEIN	ALBUMEN
Cow's Milk - - -	3·0	3·0	0·5
Human Milk - - -	3·5	1·0	1·2
The 'Allenburys' Milk Food No. 1 -	3·33	1·12	1·00
The 'Allenburys' Milk Food No. 2 -	3·06	1·0	0·81

"It is a fatal error to expect the milk of a foreign species to be immediately adapted to and utilized by the human infant; the differences between that of the woman and that of a lower animal would indicate, even when given to the newly born with normal functions, that we must wait until the delicate digestive and assimilative organs can make use of the material designed for a more vigorous animal."

—*Dr. Henry L. Coit at the English Speaking Conference on Infant Mortality.*

It follows that until such time as the digestion is developed the best food is that which approximates most closely in its composition to the maternal milk.



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TRADE MARK A.D. 1715

BACTERIAL VACCINES

prepared in the Department for Therapeutic Inoculation, St. Mary's Hospital, London, W.—Director: Sir A. E. Wright, C.B., M.D., F.R.S., etc.

The undermentioned Vaccines are supplied in bulbs containing 1 c.c., and in rubber-capped bottles containing 25 c.c. The dilutions marked with an asterisk are also supplied in rubber-capped bottles containing 10 c.c.

ACNE BACILLUS VACCINE.
In dilutions containing 10 or 20* million acne bacilli *per c.c.*

MIXED ACNE VACCINE, 'A.'*
1000 million Staphylococcus albus and 10 million acne bacilli *per c.c.*

MIXED ACNE VACCINE, 'B.'*
500 million S. albus and 20 million acne bacilli *per c.c.*

ACTINOMYCOSIS VACCINE.
Each c.c. contains 25 million mycelial fragments.

ANTI - CATARRH VACCINE (Prophylactic).*
Each c.c. contains: 100 million B. pneumoniæ (Friedländer), 50 million Pneumococcus, 500 million Staphylococcus, 100 million M. catarrhalis, 50 million B. septus (diphtheroid), 300 million B. influenzæ, and 12 million Streptococcus. Also see "Anti-Influenza Vaccine" and "Mixed Vaccine for Colds."

ANTI-CHOLERA VACCINE (Prophylactic)†
In dilutions containing 1000 or 2000 million V. choleræ *per c.c.*

ANTI - INFLUENZA VACCINE, MIXED (St. Mary's Hospital Formula).
Each c.c. contains: 500 million B. influenzæ, 1000 million Pneumococcus (mixed types), and 100 million Streptococcus. Also see "Anti-Catarrh Vaccine" and "Influenza Bacillus Vaccine."

ANTI - INFLUENZA VACCINE (Army Formula).
Each c.c. contains: 60 million B. influenzæ, 200 million Pneumococcus, and 80 million Streptococcus.

ANTI - INFLUENZA VACCINE (Wynn's Formula).
Each c.c. contains: 100 million B. influenzæ, 100 million Pneumococcus, and 100 million Streptococcus.

ANTI-MENINGOCOCCUS VACCINE (Prophylactic).
Each c.c. contains: 1000 million D. intracellularis meningitidis.

ANTISEPSIS VACCINE.
Each c.c. contains: 1000 million Staphylococcus, 35 million Streptococcus fæcalis, and 15 million S. pyogenes.

ANTI-TYPHOID VACCINE (Prophylactic).
In dilutions containing 1000 or 2000 million B. typhosus *per c.c.* Also see "Typhoid Vaccine."

ANTI-TYPHOID-PARATYPHOID VACCINE (T.A.B.).†
Each "first dose" contains 500 million B. typhosus, 250 million B. paratyphosus A, and 250 million B. paratyphosus B, *in 1 c.c.*; each "second dose" contains double these numbers *in 1 c.c.**

ANTI-TYPHOID-PARATYPHOID-CHOLERA VACCINE.†
Each "first dose" contains 500 million B. typhosus, 250 million B. paratyphosus A, 250 million B. paratyphosus B, and 1000 million V. choleræ *in 1 c.c.*; each "second dose" contains double these numbers *in 1 c.c.*

BORDET BACILLUS VACCINE.
In dilutions containing 250 or 2000 million Bordet's bacilli *per c.c.* Also see "Whooping Cough Vaccine."

GONOCOCCUS VACCINE.
In dilutions containing 5, 20, 50* or 200 million Gonococci *per c.c.*

INFLUENZA BACILLUS VACCINE.
In dilutions containing 100, 500 or 1000* million B. influenzæ *per c.c.* Also see "Anti-Influenza Vaccine."

MICROCOCCUS MELITENSIS VACCINE.
Each c.c. contains 100 million cocci.

MIXED VACCINE FOR COLDS.*
Each c.c. contains: 30 million M. catarrhalis, 30 million Pneumococcus, 300 million B. influenzæ, 300 million Staphylococcus, 50 million B. septus (diphtheroid), 12 million Streptococcus, 50 million B. pneumoniæ (Friedländer). Also see "Anti-Catarrh Vaccine."

MIXED VACCINE FOR COLIFORM INFECTIONS.
Each c.c. contains 100 million B. coli communis, 100 million B. coli communior, 40 million B. lactis aerogenes, and 20 million B. acidi lactici.

PARODONTAL STREPTOCOCCUS VACCINE *
Each c.c. contains 30 million Streptococci.

PNEUMOCOCCUS VACCINE.
In dilutions containing 20, 50* or 200 million Pneumococci *per c.c.*

STAPHYLOCOCCUS VACCINE.
In dilutions containing 100, 500, or 1000* million Staphylococci *per c.c.* Also see "Antisepsis Vaccine."

STREPTOCOCCUS VACCINE.
In dilutions containing 5, 20* or 100 million Streptococci *per c.c.* Also see "Antisepsis Vaccine."

TUBERCLE VACCINE (Tuberculin: Bacillary Emulsion).§
In dilutions containing 1/100,000; 1/40,000; 1/25,000; 1/20,000; 1/5,000; 1/2,000; 1/1,000; 1/500; 1/200; or 1/100 mgm. of powdered tubercle culture *per c.c.*

TYPHOID VACCINE (For Treatment).
Each c.c. contains 100 million B. typhosus. Also see "Anti-typhoid Vaccine."

WHOOPING COUGH VACCINE.
Each c.c. contains 250 million Bordet's bacilli and 10 million Pneumococci. Also see "Bordet Bacillus Vaccine."

* * *

"POLLACCINE" (Pollen Vaccine).
In dilutions containing 5, 20, 100 or 500* units of pollen toxin *per c.c.* Applicable for prophylaxis or treatment of hay fever, the dose to be regulated according to individual susceptibility by means of the HAY FEVER REACTION OUTFIT by which, also, it may be determined whether suspicious symptoms are those of true hay fever or not.

---

† The 1 c.c. bulbs of this vaccine are supplied in sets of two doses as required for one individual, and only the stronger of the dilutions is supplied in bottles.

§ The 1 c.c. bulbs of Tubercle Vaccine are supplied in sets of three bulbs of any one dilution.

* This vaccine is also supplied in bottles of 10 c.c.

A Pamphlet on "Vaccine Therapy" will be forwarded on request.

Sole Agents for the sale of the above-mentioned Vaccines:

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Each tablet
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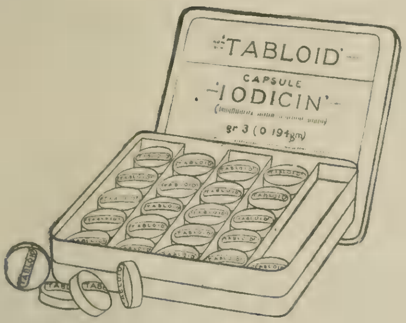

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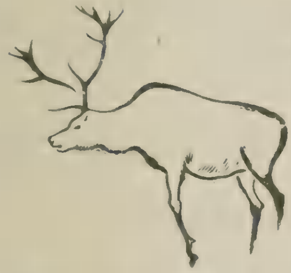
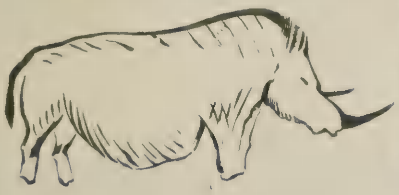
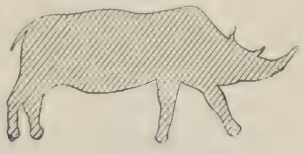


FIGURES EXEMPLIFYING A LATER STAGE IN THE HISTORY OF AURIGNACIAN PAINTING.—Following the artists who painted only the outlines of their pictures came pioneers who attempted some degree of modelling in colour. Two examples of their handiwork are here reproduced; the outlines, strokes and shading indicate the coloured portions—red in both cases. The rhinoceros is from a cavern in Dordogne, the stag from the walls of a Spanish cave. Both are remarkably lifelike, despite the fact that the artist has not yet learned to represent more than three legs, and that the antlers of the stag are depicted in full, whereas the animal itself is drawn in profile.

The Bushmen of to-day show a remarkable cultural likeness to the Aurignacians and are often referred to as their present-day representatives. They live in caves, on the walls of which they paint pictures in much the same fashion as did the Aurignacians.



For purposes of ethnographic comparison, a Bushman cave-painting, in red, of a rhinoceros, is here introduced. While certain of their animals are drawn with great skill, the Bushman paintings are—in general—far from equalling in perfection those of the Palaeolithic artists of the best period.



CULTURE PHASE: PALAEOLITHIC
(Aurignacian division)

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COMMUNICATIONS—Academy of Medicine, Paris, Nov. 10th, 1908. Academy of Sciences, Paris, Dec. 14th, 1908.

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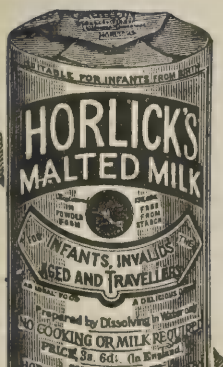
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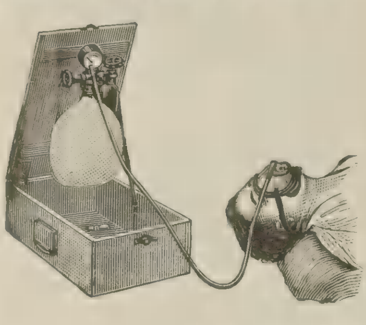

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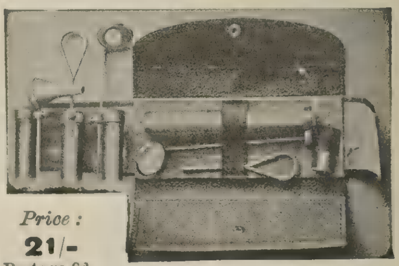

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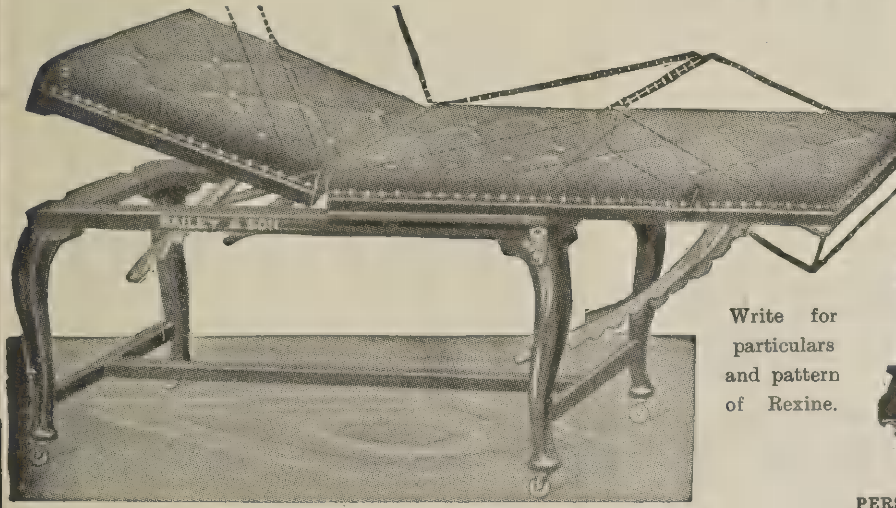

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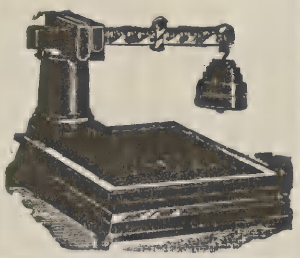

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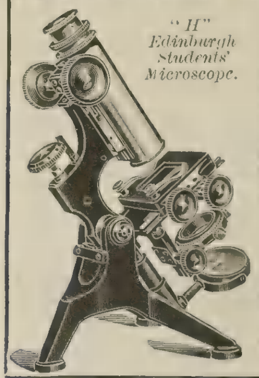

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SESSION 1920–21.

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A PRIVATE MENTAL HOSPITAL for the Care and Treatment of Persons of the UPPER and MIDDLE CLASSES of BOTH SEXES.

The House is situated on an estate of 200 acres, and has extensive Pleasure Grounds and a Farm connected with it. It lies between Bristol and Bath, three miles from Bristol Station and within two-and-a-half hours' journey from London.

In addition to the main building there are several villas completely detached and pleasantly situated in their own grounds, where there is accommodation for suitable cases. Patients can be received without certificates as Voluntary Boarders.

For terms and further particulars apply to the MEDICAL SUPERINTENDENT.

NORTHWOODS HOUSE

WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail viâ Bristol, Winterbourne, Patchway, or Yate Stations. Uncertified Boarders received. For further information see Medical Directory, page 2069. Terms moderate.

Apply to Dr. J. D. Thomas, Resident Physician and Licensee, or full particulars.

PECKHAM HOUSE (Established 1826)

112, PECKHAM ROAD, LONDON, S.E.

Telegrams "Alleviated, London." Telephone: New Cross 576

An Institution licensed for the CARE and TREATMENT of the MENTALLY AFFLICTED of Both Sexes. Conveniently situated. Electric trams and omnibuses from the Bridges and West-End pass the House. Private houses with electric light for suitable cases adjoining the Institution. Holiday parties sent to the Seaside branch at Worthing during the Summer months. Moderate terms.—Apply to Medical Superintendent for further particulars.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.

(Established 1814.)

Telegrams "SUBSIDIARY, LONDON." Telephone: No. 888, North.

A PRIVATE HOME for the Treatment of Ladies and Gentlemen suffering from Nervous and Mental Affections. Four miles from Charing Cross; easy of access from all parts.

Six acres of ground, highly situated, facing Finsbury Park.

Voluntary Boarders received without certificate. Seaside Branch at Worthing.

For particulars, apply to the RESIDENT PHYSICIAN.

NEW SAUGHTON HALL

THE ONLY PRIVATE HOSPITAL for the TREATMENT of MENTAL CASES in SCOTLAND

POLTON, MIDLOTHIAN.

NEW SAUGHTON HALL, which takes the place of Saughton Hall, established in 1798, is situated seven miles south of Edinburgh, in the beautiful neighbourhood of Hawthornden and Rosslyn, and is surrounded by picturesque and well-timbered pleasure grounds extending to 125 acres. There is also a SEASIDE HOUSE at GULLANE, EAST LOTHIAN.

Railway Stations—Polton, five minutes; and Loanhead, ten minutes' walk from the Institution—reached in half-an-hour from the Waverley Station, Edinburgh. Telephone—4 Loanhead.

Forms of admission for voluntary or certified cases, full instructions, &c., can be obtained on application to the Resident Medical Superintendent, J. BATTY TUKE, M.D., F.R.C.P. Edin. Inclusive terms from £156 to £500 per annum, according to requirements.

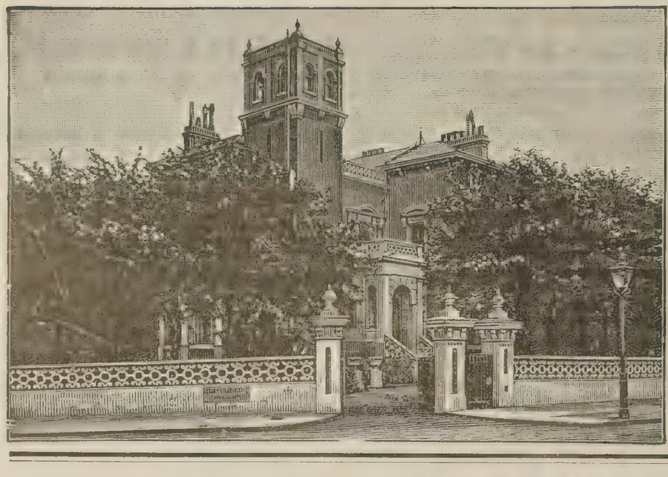
CAMBERWELL HOUSE, 33, PECKHAM ROAD, S.E.

Telegrams: "PSYCHOLIA, LONDON." Telephone: New Cross 1057.

For the Treatment of Mental Disorders.

Completely detached Villas for Mild Cases. Voluntary Boarders received. 20 acres of grounds. Cricket, tennis, croquet, squash racquets, bowls, and all in-door amusements. An Illustrated Prospectus, giving full Particulars and Terms, may be obtained on application to the Secretary. Senior Physician: FRANCIS H. EDWARDS, M.D., M.R.C.P.

HOVE VILLA, BRIGHTON—A Convalescent Branch of the Above.



MANOR HOUSE NURSING HOME

St. John's Wood Park, N.W. 8.

FOR THE SPECIAL TREATMENT OF

DIABETES,
DIETETIC DISORDERS,
TROPICAL DISEASES,

and other complaints requiring highly skilled Chemical and Bacteriological Treatment.

Any Medical case taken.

The Home is situated in a high altitude, with practically country surroundings.

Apply to the SECRETARY (Pendrill Nursing Homes, Ltd.). Telephone—HAMPSTEAD 383.

INEBRIETY.

[Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne All kinds of out-door and in-door recreations and pursuits.—For particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

YARROW CONVALESCENT HOME, BROADSTAIRS.

EXCLUSIVELY FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14. ***Charge, 15s. per week for each Child.***

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

There is a well-equipped operating theatre and a complete X-ray installation.

Particulars can be obtained from the SECRETARY, 6, HOLBORN VIADUCT, LONDON, E.C. 1.

WHERE TO SPEND EASTER.

THE GRANVILLE HOTEL,
RAMSGATE.

Delightfully situated on the East Cliff, overlooking the Sea, in the most fashionable part of Ramsgate.

THOROUGHLY RENOVATED AND REDECORATED.

THIS FAMOUS HOTEL

RE-OPENS for Reception of Visitors on MARCH 31st.

Suite of Baths equipped with most Modern Installation and Appliances for Scientific Medical Treatment—comprising Turkish Bath, Russian Vapour Bath, Radiant Light and Heat, High-Frequency and Sinusoidal Current.

For Tariff and Full Particulars of Treatment write to MANAGER, or to SPIERS & POND, Ltd., Hotels Department, 35, New Bridge Street, London, E.C. 4.

THE FINEST HOTEL ON THE COAST.

Telephone: Ramsgate 12.

Telegrams: "Granville Hotel."

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LINCOLNSHIRE.

The celebrated Bromo-Iodine Mineral Water for Arthritis, Rheumatism, Gout, Neuritis, Sciatica, and Nervous Diseases, Liver Complaints; Skin, Nose and Throat Affections; Uterine Inflammatory Diseases and Tumours. To be had of all Chemists or direct from the Springs. Apply to the Secretary, Woodhall Spa Co. Ltd., Woodhall Spa, Lincs.

THE SPA BATHS

Are now open. Fully equipped with Mineral Water, Air and Vichy Douche; Vapour, Radiant Heat and Light Baths; Fango Treatment, Throat Sprays, Cataphoresis, Schnee Baths, Bergonie Treatment for Obesity, and complete Electrical Treatment. Full particulars from the Secretary. Telephone 50.

THE VICTORIA HOTEL

REOPENS March 31.

This premier Hotel adjoins the Baths, and comprises 160 Rooms, numerous Suites, &c. Special Diets, Electric Light, Orchestra, Tennis, Croquet, and Bowls. Excellent 18-hole Golf Course. Hotel and Baths stand in own grounds and Pine Woods of 60 acres. For terms apply to the Manager. Telephone 25.

MENDIP HILLS SANATORIUM, FOR THE OPEN-AIR TREATMENT

Old-established, beautifully situated. 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Porous subsoil. Separate châlets, with verandahs, hot-water radiators, and electric light. Special features—breathing an graduated exercises, and continuous inhalation. Individual attention. ***Resident Physician*—C. MUTHU, M.D., M.R.C.S., L.R.C.P.**

For particulars, apply SECRETARY, Hillgrove, Wells, Somerset.

PENDYFFRYN HALL SANATORIUM

(NORDRACH-IN-WALES.)

FOR THE OPEN-AIR AND INOCULATION TREATMENT OF ALL FORMS OF TUBERCULOSIS.

One of the first Sanatoria opened in the United Kingdom to carry out the treatment as practised at Nordrach. Carefully graduated walks rise through pine, gorse, and heather to a height of over 1000 feet above sea level, commanding extensive views of both sea and mountains. Sheltered from E. and N.E. winds. Climate mild and bracing. Small rainfall. Large average of sunshine. There are over five miles of walks in the private grounds. Rooms heated by hot-water radiators and lit by electric light.

Sister and full Nursing Staff. Trained Nurse on duty all night.

Telegrams: Pendyffryn; and Telephone: 20 Penmaenmawr.

For particulars apply to Dr. J. M. GERATY, Medical Superintendent, Pendyffryn Hall, Penmaenmawr, N. Wales.

AIX-LES-BAINS

SAVOY, FRANCE. 8 hours from PARIS,
on the direct route from Paris to Rome.
On the border of Lake Bourget.

Successful Treatment of

RHEUMATISM
GOUT SCIATICA
SEQUELÆ OF WAR WOUNDS

Treatment by
Massage while under the Douche.
Thermal Sulphurous Radioactive Waters 117° F.

OPEN ALL THE YEAR.

DIURETIC WATERS { Deux-Reines. Saint-Simon. Massonat.

ZANDER INSTITUTE Physiotherapy.

Springs of **MARLIOZ,** strong sulphurous waters for throat and bronchial affections.

AIX-LES-BAINS is the most beautiful and important CENTRE OF TOURIST ACTIVITY in the FRENCH ALPS (64 different Excursions).

Splendid Climate. High level resort: MONT-REVARD, 5250 feet.

For all further particulars apply to the Comité d'Initiative, Aix-les-Bains.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints **CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE.** LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER, 46, Spa Enquiry Offices, Droitwich (Worcs.). **SPECIAL FACILITIES TO MEDICAL MEN**

For COMFORT and HEALTH Visit

THE CATERHAM SANITARIUM

"Battle Creek System."

Telephone: 88.
Telegrams: "HYDRO, CATERHAM."

Medical Superintendent:
Dr. F. C. SHONE.

SMEDLEY'S HYDRO.

MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.)

Prospectus and full information on application to Managing Director.

CASTLE HOUSE

For the Treatment of Chronic Disorders of Health by Systematic Modern Methods.

EXPERIENCED NURSING STAFF.

Under the personal supervision of a West-End Physician.

Apply, The Secretary, Castle House, Speen, Newbury.

EPILEPSY. THE DAVID LEWIS COLONY.

Stands in its own grounds of 180 acres and is situated in a beautiful part of Cheshire, 2½ miles from Alderley Edge Station, and 14 miles from Manchester. Electric light throughout. The Colony system ensures the social life and employment most suitable for those who suffer from Epilepsy. Patients certifiable under the Lunacy or Mental Defective Acts are NOT ELIGIBLE for admission. Two Resident Physicians. Terms for Middle- and Upper-class Patients, from 38s. a week upwards, according to accommodation and requirements. Private rooms can be provided.

For further information apply to the Director, Dr. ALAN MCDOUGALL, Warford, near Alderley Edge, Cheshire.

EPILEPSY.

Colthurst House School,

Warford, Alderley Edge.

(Under the Management of the Committee of the David Lewis Colony.)

Home Life, Medical Care, School Education, most suitable for boys subject to Epilepsy. Terms 38s. weekly.

Further particulars may be obtained from Dr. ALAN MCDOUGALL, The Colony, Warford, Alderley Edge.

DUFF HOUSE, BANFF, SCOTLAND.

TREATMENT OF DISORDERS
OF THE STOMACH AND
INTESTINES, INCLUDING
TROPICAL DISEASES; DIABETES

and other complaints which need skilled chemical, bacteriological and protozoological investigation and dietetic treatment.

The House is fitted with Laboratories, X Ray Installation, Medical Baths, Central Heating, and Lifts.

The climate is mild, and the rainfall the lowest in Scotland.

Apply, THE SECRETARY, Duff House, Banff.

THE GRANGE,

BISHOP'S STORTFORD.

A sunny house, standing in fourteen acres of ground, 45 mins. from London, receives **Convalescents (Medical or Surgical), or those recovering from nervous strain or shock.**

Tuberculous or mental cases are not received.

A special feature is the endeavour to provide intellectual interest by Weekly Lectures on Literature, Art, and Popular Science. Instruction in Gardening is given if desired.

Terms and full particulars may be had on application to the Secretary, who will also supply the names of persons who have been pleased to offer their names as references.

MISSION OF HOPE (Inc.).

Founded 1893 by Mrs. RANSOME WALLIS.

FOR THE UPLIFT OF THE UNMARRIED MOTHERS AND THE CARE OF HER UNWANTED CHILD.

3 Maternity Homes.
1 Isolation Maternity Home.
9 Homes for Children and Infants.

Permanent arrangements made for the Care and Upbringing of Friendless Children who may be without Parental Control.

Apply, Mrs. RANSOME WALLIS, Hon. Director, Mission of Hope (Inc.), 30, Denman-street, London Bridge, S.E. 1.

Grove House, All Stretton, Church

STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Telegraphic Address :
"Relief, Old Catton."

Telephone
"290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.— **A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders are also received without certificates.** Nurses supplied to take charge of patients under the care of their own medical attendants. For full particulars apply to the Misses McCLINTOCK, or to CECIL A. P. OSBURNE, F.R.C.S.E., Medical Superintendent.

CHEADLE ROYAL.

A HOSPITAL FOR MENTAL DISEASES,

CHEADLE, CHESHIRE.

AND ITS SEASIDE BRANCH,

GLAN-Y-DON, COLWYN BAY,

NORTH WALES.

The object of the above is to provide the most efficient means for the cure of mental diseases in those who belong to the **upper and middle** classes.

Voluntary boarders as well as certified patients are received for treatment.

For terms and further information apply to the Medical Superintendent, W. SCOWCROFT, M.R.C.S., &c., at Cheadle, or he may be seen at 72, Bridge-street, Manchester, on Tuesdays and Fridays from 2 to 3.

Telephone : 208 "Cheadle Hulme." 3594 "Manchester."

Home

FOR THE CARE AND TREATMENT OF

Mentally Afflicted Ladies

OTTO HOUSE,

47, North End Road, West Kensington, W.14

The Home stands in large grounds close to West Kensington Station.

For terms, apply to Miss BRODIE, Resident Lady Superintendent.

Telephone : Hammersmith 1004.

Mrs. SUTHERLAND (Licensed Proprietress).

BATH

7, LANSDOWN CRESCENT.

THE ST. CATHARINE NURSING HOME.

Beautiful position. Electric light and lift. Central heating. Dietetic and electrical treatment. Plombières douche. All chemical investigations. Telephone : 1119. Telegrams : "Nursing," Bath.

INEBRIETY MELBOURNE HOUSE, LEICESTER

PRIVATE HOME FOR LADIES.

Medical Attendant : ROBERT SEVESTRE, M.A., M.D. Cantab.
Principal : HENRY M. RILEY, Assoc. Soc. Study of Inebriety.
Thirty years' Experience. Excellent Medical References.
For Terms and Particulars, apply Miss RILEY or PRINCIPAL.
Telegrams : "MEDICAL, LEICESTER. Nat. Telephone : 769.

Wanted, Doctor to take into his home a Paying Guest Young Man who has had a nervous breakdown, but who is now convalescent.—Address, stating terms, to No. 919, THE LANCET Office, 423, Strand, W.C. 2.

Wanted, Home, easy reach town, in Medical Man's house for Husband and Wife. Wife occasionally suffering from nerves.—Cullin, 19, The Grove, Isleworth, Middlesex.

Apartment (bed sitting-room), with board and attendance, wanted for Gentleman of moderate means, about forty-five, mentally affected. Must be in a quiet Country place, the South or West of England preferred.—Apply, stating accommodation and terms, and with references and statement of experience, if any, to Dr. Parker, Gartloch, Gartcosh, Lanarkshire.

A Medical Man is willing to take two friends occupying the one bedroom, or married couple (no children). Large house, three sitting-rooms, fine garden. Splendid country round. Terms moderate. References required and given.—Address, No. 913, THE LANCET Office, 423, Strand, W.C. 2.

IN BEAUTIFUL COUNTRY, 18 MILES FROM LONDON.

Littleton Hall, Brentwood, Essex (400 feet above sea-level). A HOME for a few LADIES Mentally Afflicted. Large grounds. Liverpool-street half an hour. Stations: Brentwood one mile; Shenfield one mile. Voluntary Boarders received. Vacancy.—For terms, &c., apply Dr. Haynes. Telephone and Telegrams : Haynes, Brentwood 45.

Home for Chronics and Maternity CASES. From £5 5s. per week upwards. Nurses supplied at short notice to any part. Tel.: Otley 67.—Apply, Matron, Wharfedale Nursing and Nurses' Home, Leeds-road, Otley, Yorks.

The Committee of the Newport Mental HOSPITAL, Caerleon, are prepared to receive a limited number of PAYING PATIENTS into the Hospital at moderate charges.

For terms, please apply to the Medical Superintendent.

A Resident Patient can be received in Medical Man's charming country house, within fifteen miles of Town. Specially suited for nerve, drug, alcoholic, or other cases.—For further details and terms, apply E., care of Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Resident Patients.—Descriptive List (Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case and terms to the General Manager, Scholastic, Clerical & Medical Assn., Ltd., 22, Craven-street, Trafalgar-square, W.C. 2.

Resident Patient.—A Doctor's Widow, an experienced nurse, having a large house and grounds in the Country a few miles from London, can receive Patients. Specially successful with Sprue cases.—For further details and terms apply, B., Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W. 8.—The Board of Management invite applications for the post of SURGEON (with charge of beds) to the Nose, Throat, and Ear Department.

Applications to be sent to the Secretary by April 19th.

The Throat Hospital, Golden-square, W. 1.—Applications are invited for the appointment of SURGICAL REGISTRAR. Candidates should send in their applications not later than the 10th April, accompanied by copy of three testimonials, to

WM. HOLT, Secy.-Supt.

National Hospital for the Paralysed, Queen-square, W.C.—HONORARY GYNÆCOLOGIST. — The Board of Management invite applications from duly qualified candidates for this post, which is vacant. These should be addressed to the undersigned on or before Monday, April 5th.

GODFREY H. HAMILTON, Secretary.

The South London Hospital for WOMEN, South Side, Clapham Common, S.W. 4.—The Board of Management invite applications from fully qualified Medical Women for the post of ASSISTANT PHYSICIAN. Full particulars may be obtained from the Secretary. Canvassing Members of the Board is not allowed. Applications, with copies of testimonials, to reach the Secretary at the Hospital not later than the first post on April 20th.

The Prince of Wales's General Hospital, Tottenham, N. 15.—Applications are invited for the following posts, vacant on the 15th April next :—

HOUSE PHYSICIAN, £200 per annum ;
HOUSE SURGEON, £200 per annum ;
JUNIOR HOUSE SURGEON, £120 per annum ;
JUNIOR HOUSE PHYSICIAN, £120 per annum ;

with residence, board and laundry.

The appointments are from 15th April to 15th October, 1920.

Candidates (Male) must be duly qualified and registered, and applications, together with copies of three recent testimonials, to be sent to me on or before Monday, the 5th April next.

March 16th, 1920. FREDK. W. DREWETT, Director.

The Hospital for Sick Children, Great Ormond-street, W.C. 1.—A RESIDENT MEDICAL SUPERINTENDENT is required on 8th April, 1920.

Candidates are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, the 5th April, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for one year, but may be held subject to re-election for [illegible] period of three years.

Salary £200 per annum, with board and residence in the Hospital, and £5 allowance for laundry.

Candidates must be registered Medical Practitioners, and must have held a responsible Hospital appointment.

All candidates must appear before the Joint Committees at their meeting on Wednesday, 7th April, at 5 P.M. precisely.

Forms of application and copies of the rules may be obtained from the Secretary at the Hospital.

By order of the Committee of Management.

March, 1920. JAMES MCKAY, Acting Secretary.

The Hospital for Sick Children, Great Ormond-street, London, W.C. 1.—An ASSISTANT CASUALTY MEDICAL OFFICER is required on the 14th April, 1920.

Candidates are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, 5th April, 1920, with copies of not more than three testimonials written specially for the purpose.

The appointment is for six months. Salary £50, washing allowance £2 10s., with board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

They will be required to attend before the Joint Committees at their meeting on Wednesday, 7th April, at 5 P.M. precisely.

Forms of application and copies of the rules may be obtained from the Secretary at the Hospital.

By order of the Committee of Management.

March, 1920. JAMES MCKAY, Acting Secretary.

The Hospital for Sick Children, Great Ormond-street, London, W.C. 1.—A HOUSE PHYSICIAN is required on the 1st May, 1920.

Candidates are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on 5th April, 1920, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible hospital appointment.

The appointment is made for six months. Salary £50, laundry allowance £2 10s., and board and residence in the Hospital.

Candidates must be unmarried, and possess [illegible] legal qualification to practise.

They will be required to attend before the Joint Committees at their meeting [illegible] Wednesday, the 7th April, 1920, at [illegible] P.M. precisely.

Forms of application to be obtained from the Secretary.

By order of the Committee of Management.

March, 1920. JAMES MCKAY, Acting Secretary.

The Hospital for Sick Children, Great Ormond-street, London, W.C. 1.—A HOUSE SURGEON is required on the 1st May, 1920.

Candidates [illegible] invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday 5th April, 1920, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held [illegible] responsible hospital appointment.

The appointment is made for six months. Salary £50, laundry allowance £2 10s., and board and residence in the Hospital.

Candidates must be unmarried, and possess [illegible] legal qualification to practise.

They will be required to attend before the Joint Committees at their meeting on Wednesday, the 7th April, 1920, at 5 P.M. precisely.

Forms of application to be obtained from the Secretary.

By order of the Committee of Management.

March, 1920. JAMES MCKAY, Acting Secretary.

The Hospital for Sick Children, Great Ormond-street, London, W.C. 1. — An ASSISTANT FEMALE is required to the Director of the Massage and Physical Exercises Department.

Candidates must possess the Certificate of the Incorporated Society of Masseuses.

Candidates [illegible] invited to send in their applications, addressed to the Secretary, on or before 12 o'clock [illegible] Monday, the 5th April, 1920, with copies of not more than three testimonials given specially for the purpose.

The appointment is made for twelve months. Salary £160 per annum, rising by £10 [illegible] year to £200. Lunch and tea provided.

Candidates may be required to attend before the Committee.

Forms of application and copy of the rules for the appointment [illegible] be obtained from the Secretary.

By order of the Committee of Management.

March, 1920. JAMES MCKAY, Acting Secretary.

Central London Ophthalmic Hospital, Judd-street, W.C. 1. — There is a vacancy for HOUSE SURGEON. Applications, with testimonials, from duly qualified candidates must be sent to the Secretary on or before Saturday, March 27th. Candidates must attend at the Hospital on Monday, March 29th, at 4 p.m. Salary at the rate of £50 per annum, with board and residence in the Hospital. H. R. S. DRUCE, Secretary.

Royal National Orthopædic Hospital, 234, Great Portland-street, W. 1.—Applications are invited for the post of HOUSE SURGEON. £200 per annum, with board, residence, and washing. The appointment will be for six months, renewable. Applicants must be duly qualified registered Medical Practitioners and unmarried.

Applications, enclosing copies of testimonials, to be addressed to the Secretary by April 3rd.

Queen Mary's Hospital for the East END, Stratford, E.15 (Telephone: Stratford 714. Beds: 130. Out-patient attendances: 145,000. Patron: Her Majesty the Queen). HOUSE PHYSICIAN.—Applications are invited from fully qualified and registered Medical Men.

The Hospital contains 130 beds, including Maternity Wards, Ear, Throat and Nose, Ophthalmic and other departments.

Applications, accompanied by copies of testimonials, to be addressed to the undersigned. A. W. SCRIVENER, Secretary.

St. Mary's Hospital for Women and CHILDREN, Plaistow, London, E. 13. — The Committee of Management invites applications for the post of SURGEON in Charge of the X Ray Department, at [illegible] honorarium of £100 per annum.

Candidates must be duly registered under the Medical Acts.

For copies of duties, &c., apply to the undersigned, to whom applications, accompanied by not more than three recent testimonials, must be sent not later than 12 noon on Tuesday, March 30th.

By order.

16th March, 1920. A. ERNEST WILKES, Secretary.

St. Thomas's Hospital.—Applications are invited for following appointments in the Venereal Department :—

Two SENIOR ASSISTANT MEDICAL OFFICERS at £600 per annum.

Two JUNIOR ASSISTANT MEDICAL OFFICERS at £350 per annum.

One BACTERIOLOGIST at £600 per annum.

All appointments are for twelve months and renewable annually.

The Department will be open from 8 A.M. to 10 P.M. daily (Sundays excepted), and two Assistant Medical Officers will be on duty at one time.

Candidates for posts [illegible] Assistant Medical Officers should stat whether, in the event of their not being appointed to one of the Senior posts, they are willing to serve in one of the Junior.

Applications, stating age, qualifications, and experience, with copies of three testimonials, to arrive not later than Monday, March 29th, should be addressed to the Secretary, St. Thomas's Hospital, Albert Embankment, S.E. 1.

Metropolitan Borough of Greenwich. Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH and MEDICAL OFFICER FOR TUBERCULOSIS DISPENSARY.—The Council of the above Borough will, at its meeting to be held on the 28th April, 1920, or at [illegible] adjournment thereof, proceed to the appointment of [illegible] Assistant Medical Officer of Health and Medical Officer to take charge of the Tuberculosis Dispensary, and applications are invited for the appointment.

Candidates must be registered Medical Practitioners, have held [illegible] house appointment for at least six months in [illegible] general hospital, have special practical experience in modern forms of treatment of Tuberculosis, in [illegible] sanatorium or otherwise, and must have had practical experience in bacteriological laboratory work. Candidates must have [illegible] Diploma in Public Health.

The person appointed will have charge of the Tuberculosis Dispensary under the administrative direction and control of the Medical Officer of Health, shall be personally responsible for the diagnosis and treatment of all patients at the Dispensary, shall carry out the duties of Tuberculosis Officer, and shall visit for the purpose of keeping observations on his own patients, but not generally for domiciliary treatment. He shall be available for consultation with general practitioners, and [illegible] and when provided shall act as Medical Officer to the Home of Rest and Tuberculosis Working Centre.

He shall perform such duties [illegible] may be considered necessary by the Medical Officer of Health.

The commencing salary will be at the rate of £700 per annum, rising by £50 per annum to [illegible] maximum salary of £900, to include all present and future bonuses.

The successful candidate will be required to devote the whole of his time to the service of the Council, shall not engage in private practice, and shall reside within the Borough.

The appointment will be terminable by three months' notice on either side, and the person appointed shall not on retirement claim or be entitled to any superannuation.

Applications must be made on forms to be obtained from the undersigned, stating age, qualifications, and experience, accompanied by not more than three recent testimonials, and must be sealed up and endorsed outside "Medical Officer," and must reach me not later than 10 a.m. on Friday, 9th April, 1920.

Canvassing members of the Council, either directly or indirectly, will be [illegible] disqualification, but there would be no objection to [illegible] candidate, if he so desires, sending copies of his application and testimonials, which may be addressed to the Town Clerk.

FREDERICK J. SIMPSON, Deputy Town Clerk.

Town Hall, Greenwich-road, S.E. 10, 10th March, 1920.

Western Ophthalmic Hospital, Marylebone-road, N.W. 1. — NON-RESIDENT HOUSE SURGEON required at the end of March. Salary at the rate of £100 per annum. Applications should be accompanied by copies of three testimonials, and should be sent to the undersigned at once.

H. W. BURLEIGH, Hon. Secretary.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.3.—The Committee of Management invite applications for the post of RADIOLOGIST. Honorarium £25 per annum for each weekly attendance.

Applications, with three testimonials, should be sent to Secretary on or before April 17th, 1920. H. G. EVERED, Secretary.

The Mount Vernon Hospital for Consumption and DISEASES of the CHEST, Fitzroy-square, W., and Northwood.—There are vacancies for Two HONORARY RADIOLOGISTS. Applicants must be fully qualified and registered. Applications, with copies of testimonials, to

Offices, 7, Fitzroy-square, W. 1. W. J. MORTON, Secretary.

Italian Hospital, Queen-square, W.C. 1.—The Committee of Management invite applications for the post of HONORARY ASSISTANT ANÆSTHETIST from fully qualified candidates.

Applications, with testimonials (copies only), should be sent to the Secretary and Controller on or before Saturday, 10th April, 1920.

Paddington Green Children's Hospital, London, W. 2.—The post of SURGEON to the Eye Department is vacant. Candidates, who must be F.R.C.S. of England, are invited to send their applications, with three copies of testimonials, to the undersigned not later than April 15th.

F. STANLEY CHEER, Secretary.

Paddington Green Children's Hospital, London, W. 2.—The post of PHYSICIAN to the Skin Department is vacant. Candidates, who must be M.R.C.P. or F.R.C.S., are invited to send their applications, with three copies of testimonials, to the undersigned not later than April 15th.

F. STANLEY CHEER, Secretary.

Paddington Green Children's Hospital, London, W. 2.—The posts of PHYSICIANS to Out-patients are vacant. Candidates, who must be M.R.C.P. or F.R.C.P., are invited to send their applications, with three copies of testimonials, to the undersigned not later than the 15th April. F. STANLEY CHEER, Secretary.

Paddington Green Children's Hospital, London, W. 2.—HOUSE PHYSICIAN, HOUSE SURGEON. These appointments will become vacant on 1st. May, 1920. Salary of House Physician £150, and House Surgeon £150 a year, with board, residence, and washing. Applications, with copies of three testimonials, must be sent in to the undersigned not later than the 15th April. F. STANLEY CHEER, Secretary.

University College Hospital, Gower-street, W.C. 1.—Applications are invited for the post of CASUALTY MEDICAL OFFICER at University College Hospital, and must reach the Secretary not later than noon on Saturday, April 3rd, 1920.

Appointment for six months, subject to re-election. Salary £150, with lunch daily. Hours 10 A.M. to 4 P.M.

University College Hospital, Gower-street, W.C. 1.—Applications are invited for the appointment of SECOND CLINICAL ASSISTANT (Honorary) in the Child Welfare Department.—The selected candidate will be required to attend Two Afternoon Clinics per week. Applications should reach the Secretary of the Hospital not later than noon on Wednesday, April 7th, 1920. The appointment is open to lady candidates.

The Mothers Hospital, 153-163, Lower Clapton-road, Hackney, E. 8.—A RESIDENT MEDICAL OFFICER is required at this Maternity Hospital and School of Midwifery (beds 73). Commissioner Adelaide Cox, The Salvation Army Women's Social Headquarters, 280, Mare-street, Hackney, E. 8, desires to meet with a Christian Woman for this important sphere of useful service.

The Prince of Wales's General HOSPITAL, Tottenham, N. 15.—Applications are invited for Two HONORARY ASSISTANT PHYSICIANS.

Candidates must be Graduates in Medicine of a British University and Fellows or Members of one of the Royal Colleges of Physicians, or in the case of gentlemen who have been on active service must be prepared to obtain this qualification within a period of twelve months.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, to be sent to me on or before Monday, the 5th April next.

March 23rd, 1920. FREDK. W. DREWETT, Director.

Royal London Ophthalmic Hospital (MOORFIELDS EYE HOSPITAL), City-road, E.C. 1.—REFRACTION ASSISTANT.—Applications are invited for the office of Refraction Assistant on Monday and Thursday mornings. Candidates must be registered Medical Practitioners. Salary at the rate of £100 per year for two mornings' work a week. Hours of attendance from 9 A.M. until 1 P.M. The Refraction Assistant will be appointed for a period of one year, and will be eligible for re-appointment. Applications, stating age and qualifications, must be received not later than 6th April, 1920, by ROBERT J. BLAND, Secretary-Superintendent.

Wandsworth Union. — Assistant MEDICAL OFFICER (temporary) required at St. John's Hill Infirmary, St. John's Hill, Wandsworth, S.W. 18. Apply to the Deputy Medical Superintendent at the Infirmary.

National Hospital for Diseases of
THE HEART,
Westmoreland-street, W. 1.

HONORARY ASSISTANT PHYSICIAN.

The Committee of Management invites applications for the post of Honorary Assistant Physician to the Hospital. Candidates must be Graduates in Medicine of a University of the United Kingdom and Fellows or Members of the Royal College of Physicians of London.

Applications, with ten copies of not more than three recent testimonials, should be sent to the undersigned not later than Friday, the 16th April, 1920. ROBERT G. E. WHITNEY, Capt., Secretary.

Belgrave Hospital for Children (Incorporated), Clapham-road, S.W. 9.—The Committee of Management invite applications for the posts of HOUSE PHYSICIAN and HOUSE SURGEON, which will become vacant on April 24th. Applicants must be fully qualified and registered. The appointments are for six months, with board, residence, and washing provided. Salary at the rate of £100 per annum in the case of House Physician, and £75 per annum in the case of House Surgeon.

Applications, with copies of testimonials, to be forwarded on or before March 31st to the undersigned, from whom further particulars may be obtained. By order.

THOMAS CLAPHAM, Secretary.

Hospital for Consumption and DISEASES of the CHEST, Brompton.—The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are two vacancies). The duties include work in the Out-patients' Department as well as in the Wards. Further particulars may be obtained from the undersigned, to whom applications, with testimonials, should be addressed not later than Thursday, April 15th.

Candidates are requested to attend the Medical Committee on Monday, April 19th, at 4.30 o'clock. Testimonials as to moral character, as well as to medical qualifications, are required. The appointment is for six months, with an honorarium of 30 guineas.

Applications received from qualified women.

March, 1920. FREDERICK WOOD, Secretary.

West London Hospital, Hammersmith, W. 6. (160 beds.) Incorporated by Royal Charter.—Applications are invited for the appointment of ASSISTANT ANÆSTHETIST. Candidates are required to be registered under the Medical Act; to send applications, with copies only of testimonials, so as to reach me by Wednesday, 21st April; to attend the Medical Council on Friday, April 23rd, at 4.30 P.M., and prior to that date to call upon and send copies of their application and testimonials to the members thereof; to abstain from canvassing, but nevertheless to send copies of their application and testimonials to the members of the Board of Management, who will elect on Tuesday, April 27th, at 5 P.M., when candidates must be in attendance.

H. A. MADGE, Secretary.

The Miller General Hospital for SOUTH-EAST LONDON, Greenwich-road, London, S.E. 10.—The Board of Management invite applications for the following Honorary appointment—namely, SURGEON to In-patients and Out-patients.

Candidates for the post shall be Fellows of the Royal College of Surgeons of England, and not engaged in general practice.

Selected candidates will be appointed for three years, and will be eligible for re-election.

There are at present 90 beds (76 Hospital and 14 Convalescent Home), but an enlargement of the Hospital is contemplated, and additional land has been purchased and plans are being prepared.

Applications, with copies of not more than three recent testimonials, which may be printed or typewritten, to be sent in on or before April 1st next to the undersigned, at the Hospital, from whom further particulars can be obtained. JOHN H. ROBINSON, Chairman.

London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C. 1. (165 beds).—The Board of Management are prepared to receive applications for the post of ANÆSTHETIST.

Honorarium £50 per annum. The appointment is made for one year, subject to re-election.

Candidates must possess a registrable qualification, and produce evidence of recent training in the administration of Anæsthetics.

Candidates will be required to attend a meeting of the Medical Committee.

Applications, stating age, with copies of testimonials (30 of each), should be addressed to the Secretary of the Hospital, of whom further particulars may be obtained.

March, 1920. EDWARD A. ATTWOOD, Secretary.

London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C. 1 (165 beds).—The Board of Management are prepared to receive applications for the following appointment:—

ASSISTANT SURGEON TO THE HOSPITAL.

The successful candidate must be, or become within a limited period, a Fellow of one of the Royal Colleges of Surgeons, and be, or become, a Member of the British Homœopathic Society.

Candidates canvassing members of the Board, Medical Council, or Medical Committee are thereby disqualified.

Candidates may be required to attend a meeting of the Medical Committee.

Applications, stating age, with copies of testimonials (30 of each), should be sent addressed to the Secretary, of whom further particulars may be obtained.

March, 1920. EDWARD A. ATTWOOD, Secretary.

Macclesfield General Infirmary.—Wanted by the middle of April, RESIDENT HOUSE SURGEON able to administer Anæsthetics. Salary £200 per annum, with residence and board.

Applications, stating age, qualifications, and copies of testimonials, to be sent to the undersigned. A. E. HANRAHAN, Secretary.

Leeds Public Dispensary.—Wanted at once, fully qualified RESIDENT MEDICAL OFFICER. Salary £200, with board, residence, and laundry. Separate sitting room. Applications, with copies of three recent testimonials, to be addressed to the Secretary of the Faculty, Public Dispensary, North-street, Leeds.

The Stamford, Rutland, and General INFIRMARY, Stamford.—Male HOUSE SURGEON (English) wanted immediately. Salary at the rate of £200 per annum, with board and residence in the Infirmary. Candidates to forward three recent testimonials, with particulars as to age, qualification, and experience to us.

Stamford. STAPLETON AND SON, Secretaries.

Association for the Prevention of CONSUMPTION in the COUNTY of SALOP and the HUNDRED of MAELOR.—KING EDWARD VII. MEMORIAL SANATORIUM, Shirlett, near Much Wenlock.—Applications are invited for the appointment of RESIDENT MEDICAL SUPERINTENDENT at the above Sanatorium. Salary £450 per annum, together with board and residence.

There is no accommodation at the Sanatorium nor in immediate neighbourhood for a married officer.

Forms of application and conditions of appointment can be obtained from the Secretary, 7, The Square, Shrewsbury, and should be returned to him accompanied by three recent testimonials.

Monmouthshire County Council.—PATHOLOGIST and BACTERIOLOGIST.—The Monmouthshire County Council invite applications for the post of Pathologist and Bacteriologist from duly qualified Medical Practitioners holding a Diploma in Public Health or proceeding to the same at an early date.

Applicants must not be over forty years of age, and should have had special training and experience in Pathology and Bacteriology. They must also be prepared to undertake general Public Health work when requested by the County Medical Officer.

The salary will be £750 per annum, rising to £850 by annual increments of £25, with the necessary travelling and out-of-pocket expenses.

The successful candidate will be required to act under the direction and supervision of the County Medical Officer, to devote whole time to the service of the County Council, and to reside within such place as the Council may determine.

A schedule of the duties to be performed, together with conditions of appointment and a form of application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by the 7th April, 1920.

D. ROCYN JONES, County Medical Officer.

County Hall, Newport, Mon., 15th March, 1920.

City of Carlisle.—Appointment of ASSISTANT MEDICAL OFFICER for Maternity and Child Welfare.—Applications are invited for the appointment of a duly qualified Medical Practitioner (Female) for Maternity and Child Welfare work.

The person appointed will be required to act under the direction of the Medical Officer of Health, and to devote the whole of her time to the duties of the office connected with the Corporation's Maternity and Child Welfare Scheme, which includes a small Maternity Hospital, Ante-natal and Infant Consultation Clinics, the coördination of the work of the local voluntary welfare associations, and such other duties as the Council may from time to time require.

The salary will be £500 per annum, rising by two annual increments of £25 to a maximum of £550 per annum, subject to satisfactory service. The officer appointed will be expected to reside in the area of the Local Authority.

Applications for the appointment, stating age, qualifications, and experience, accompanied by copies of recent testimonials, should be sent to the Medical Officer of Health, 19, Fisher-street, Carlisle, not later than Monday, the 29th March, 1920. By order.

A. H. COLLINGWOOD, Town Clerk.

Town Clerk's Office, Carlisle, 16th March, 1920.

Liverpool Education Committee.—ASSISTANT SCHOOL MEDICAL OFFICERS.—Applications are invited for Two Assistant School Medical Officers in the Department of the Medical Officer to the Education Authority, at salaries at the rate of £350 per annum, rising to £450 by annual increments of £25, together with War Bonus under Civil Service Award No. 101—viz., £60 per annum, plus 30 per cent. of salary.

Applicants must be registered Medical Practitioners, and it is desirable that candidates should hold a Diploma in Public Health, or have had some special experience in School Hygiene and in the study of Diseases of Children.

The Medical Officers appointed will be required to devote their whole time to the service of the Education Committee, and will not be allowed to undertake any private practice.

They will be required to contribute to the Liverpool Corporation Superannuation scheme, as required by the Standing Orders of the City Council.

Applications, stating age, qualifications, &c., together with not more than three recent testimonials, and endorsed "Assistant School Medical Officer," must be delivered at the Office of the Town Clerk, Municipal Buildings, Liverpool, before Wednesday, the 7th day of April, 1920.

The canvassing of members of the Committee or the City Council is strictly prohibited, and will be considered a disqualification.

EDWARD R. PICKMERE,
Town Clerk and Clerk to the Local Education Authority.

Beckett Hospital, Barnsley (120 beds). JUNIOR HOUSE SURGEON (Male) required end of March. Salary £150 per annum, with board, residence, &c. Applicants must be legally qualified and registered. Applications, stating age, qualifications, and experience, and accompanied by testimonials, should be sent not later than March 22nd, addressed to the undersigned.

GUY B. DALE, Secretary.

Wolverhampton and Midland Counties EYE INFIRMARY.—HOUSE SURGEON wanted, preferably with a knowledge of Refraction. There are 50 beds for In-patients, and a large Out-patient Department. Salary £200 a year, with furnished apartments, board, and laundry.

Applications, with copies of three recent testimonials, should reach the Secretary not later than 8th April.

Wolverhampton, 13th March, 1920. EUSTACE LEES, Secretary.

City of Bradford.—Wanted, a duly qualified MEDICAL WOMAN for Ante-Natal work. Preference will be given to those who have had experience in Maternity work and who possess the D.P.H. Salary £500 a year, plus war bonus at present £67 12s. Applications, on forms to be obtained from the undersigned, should be returned not later than the 3rd April.

JOHN J. BUCHAN, Medical Officer of Health.

Town Hall, Bradford.

Victoria Hospital, Burnley (100 beds). Wanted, Additional HOUSE SURGEON. Salary £250, with residence, board, and washing. Candidates, who must be fully qualified, are requested to send in their applications, with copies of testimonials, as early as possible, to F. A. HARGREAVES, Hon. Sec., 7, Grimshaw-street, Burnley.

This Hospital is approved by the London University for the purpose of M.B. and M.S. Examinations.

Derbyshire Royal Infirmary, Derby.—There is a vacancy at this Infirmary (General Hospital of 320 beds) for an OPHTHALMIC HOUSE SURGEON. Candidates must hold qualifications in Medicine and Surgery and be registered under the Medical Acts. The appointment is tenable for six months. Salary £200 per annum, with apartments, board, &c. Applications, with copies of not more than five testimonials, to be sent to the undersigned.

WALTER BANKS, Superintendent and Secretary.

Royal Infirmary, Derby, 16th March, 1920.

Manchester Children's Hospital, Pendlebury, near Manchester (190 beds).—Wanted, a RESIDENT MEDICAL OFFICER, who will be appointed for six months. Candidates must be unmarried, doubly qualified, and duly registered.

Salary at the rate of £150 per annum.

Applications, stating age, and accompanied by copies of not more than four testimonials, to be sent to the undersigned at the Hospital, Pendlebury, near Manchester, at once. By order.

March, 1920. W. M. HUMPHRY, Secretary.

Derbyshire Education Committee.—Whole-time SCHOOL DENTIST.—Applications are invited for the position of whole-time School Dentist (Male or Female) on the Staff of the School Medical Officer. Starting salary £450 per year, together with travelling expenses. Particulars of the appointment and forms of application may be obtained from the School Medical Officer, New County Offices, St. Mary's Gate, Derby, to whom such applications must be delivered, together with copies of three recent testimonials, by April 10th, 1920. SIDNEY BARWISE.

New County Offices, St. Mary's Gate, Derby, March 23rd, 1920.

The Royal Earlswood Institution, REDHILL, SURREY.

ASSISTANT MEDICAL OFFICER required.

Must be registered Practitioner, Male, unmarried, and willing to assist in the games and amusement.

The appointment will be tenable for three years, and special facilities are afforded to continue medical studies and attend classes and hospitals.

Inclusive salary commencing £400 per annum, with board, residence, and washing.

Applications, stating age, religion, and qualifications, with copies of not more than three testimonials of recent date and two references, to be sent on or before the 31st inst., to the Secretary, at the Offices, 14, Ludgate-hill, E.C. 4, the envelope to be endorsed "Assistant Medical Officer."

10th March, 1920. H. HOWARD, Secretary.

Warwickshire and Coventry Joint COMMITTEE FOR TUBERCULOSIS.—ASSISTANT TUBERCULOSIS OFFICER.—The Joint Committee invite applications for the appointment of an Assistant Tuberculosis Officer at a salary of £500 per annum, rising by annual increments of £25 to £600 per annum, with reasonable travelling expenses in addition.

The person appointed must be a registered Medical Practitioner between the ages of twenty-five and forty-five, must devote the whole of his or her time to the duties of the office, must have had special practical experience in the Treatment of Tuberculosis in Sanatoria and otherwise, and must be thoroughly acquainted with modern methods of diagnosis and treatment.

Application must be sent in not later than Tuesday, the 6th April, 1920, and must be made on a form to be obtained from the undersigned, who will also, on request, forward a copy of the terms of appointment and the duties of the office.

E. FIELD, Clerk of the Joint Committee.

42, Warwick-street, Leamington, 16th March, 1920.

Liverpool Stanley Hospital.—Two HOUSE SURGEONS required. Salary £150 per annum, with board, residence, and laundry.

Applications, enclosing copies of three recent testimonials, to be made to the undersigned. FRANK WHITE, Hon. Sec.

The Royal Infirmary, Sunderland.— Wanted. JUNIOR HOUSE SURGEON, Male. Salary £200 per annum, with board, residence, and laundry. State age and qualifications, and submit copies of three testimonials by March 30th to

S. C. FRYERS, Secretary.

The Royal Infirmary, Children's HOSPITAL, Sunderland.—JUNIOR RESIDENT MEDICAL OFFICER (Female) required. Candidate must possess double qualifications (registered). Salary £150 per annum, with board, residence, and laundry. There are 66 beds.

Applications, stating age, with copies of three recent testimonials, to be received by the undersigned not later than March 30th.

March 17th, 1920. S. C FRYERS, Secretary.

The Royal Infirmary and Children's HOSPITAL, Sunderland.—Wanted, VISITING MEDICAL OFFICER to take charge of the X ray, Electro-Therapeutic, and Massage Department, who will be restricted to this class of practice. Salary £300 per annum Applications to be received not later than April 10th. For particulars of appointment apply to S. C. FRYERS, Secretary, Infirmary Offices, Sunderland.

Dorset County Council Education COMMITTEE.—Appointment of SCHOOL DENTISTS.—Two School Dentists required. Duties: To examine the teeth of School Children and to treat those with dental defects. Salary £400 per annum with travelling expenses.

Application form and terms of appointment may be obtained from Secretary for Education, County Offices, Dorchester.

Huddersfield Royal Infirmary.— Wanted, a fully qualified Male ASSISTANT HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Applications, stating age, with copies of testimonials, to be sent to Mr. J. BATE, Secretary, Royal Infirmary, Huddersfield.

Royal Victoria Infirmary, Newcastle-upon-Tyne.—ANÆSTHETIST (non-resident), registered in Medicine and Surgery, wanted as soon as possible.

Full particulars as to hours of duty, remuneration, &c., can be obtained by application to the House Governor and Secretary.

19th March, 1920.

Wakefield.—Junior House Surgeon (single) required immediately for GENERAL HOSPITAL. Must be doubly qualified and a good Anæsthetist. Salary £200, with board, residence, and laundry. Applications, stating age and experience, with copies of three recent testimonials, to be sent to the Secretary, Clayton Hospital, Wakefield.

Newark Hospital and Dispensary.— Wanted, a Male RESIDENT HOUSE SURGEON, fully qualified, to commence duties at once. Ample time for reading. Salary £200 per annum, with board, lodging, and laundry in the Hospital.

Applications, stating age, with copies of three recent testimonials, to be sent to the Secretary, HENRY CRAMPTON, 27, Kirk Gate, Newark-on-Trent.

North Staffordshire Infirmary (280 beds), Stoke-on-Trent.—HOUSE SURGEON required.

Candidates must be fully qualified and registered.

Salary £200 per annum, with board, residence, and laundry.

Applications, stating age and experience, together with copies of recent testimonials, to be sent to the undersigned.

March 22nd, 1920. W. STEVENSON, Secretary and House Governor.

The Royal Infirmary, Sheffield.— The Board of Management invite applications for the post of HONORARY RADIOLOGIST to the Royal Infirmary. An honorarium of £100 per annum will be paid.

Applicants, who must be fully qualified and registered, should address, in writing, giving all necessary particulars, to

Board Room, 24th March, 1920. JNO. W. BARNES, Secretary.

The Royal Infirmary, Sheffield (363 beds).—The Weekly Board invite applications for the following posts:—

HOUSE SURGEON and
RESIDENT ANÆSTHETIST.

The salary attached to each appointment is £150 per annum, with board and residence.

Particulars of salaries and duties may be had on application to

Board Room, March, 1920. JNO. W. BARNES, Secretary.

Burton-on-Trent Infirmary.—House SURGEON.—The Committee require the services of a duly qualified Resident House Surgeon. Salary £200 per annum, plus honorarium, with comfortable rooms and board. Duties to commence immediately. Applications, stating age and experience, and accompanied by copies of testimonials, to be sent to the undersigned not later than April 1st, 1920.

The Infirmary, Burton-on-Trent. JOHN WOOD, Hon Sec.

House Surgeon wanted at the Hos-PITAL, Tiverton, Devon. Salary £100 per annum, with rooms, board, and laundry. Leisure for reading. Apply to the Hon. Sec.

Wolverhampton and Staffordshire GENERAL HOSPITAL.—A HOUSE SURGEON wanted for April 7th. The Hospital contains 210 beds, including the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice. Candidates must be registered under the Medical Acts.

The appointment is for six months, with a salary at the rate of £200 per annum; board, furnished rooms, and laundry provided.

Application, with copies of testimonials, to the undersigned.

W. H. HARPER, House Governor and Secretary.
Wolverhampton, 23rd March, 1920.

Gravesend Hospital. — House SURGEON.—Applications are invited from fully qualified Men for the above post.

The Hospital contains 72 beds and cots, and has an Out-patient and Casualty Department.

Owing to the unique situation of the Hospital, at the entrance to the Port of London, many accidents and interesting cases are treated, and the post affords an excellent opportunity for Surgical experience.

Salary £200 per annum, with board, residence, and laundry, will be paid to the successful applicant.

Applications, with copies of three recent testimonials, should be sent to the undersigned immediately.

March 23rd, 1920. C. E. CHAPMAN, Secretary.

Salford Royal Hospital (272 beds).— Applications are invited for the following vacancies, which will occur in the Resident Medical Staff (Male) on the 31st March next:—

RESIDENT SURGICAL OFFICER. Salary at the rate of £250 per annum.

HOUSE SURGEON. Salary at the rate of £150 per annum.

The appointments are for a period of six months, with board and residence.

Candidates must be registered under the Medical Act.

Applications, stating age and qualifications, together with copies of testimonials and certificate of registration, to be addressed to the undersigned without delay. By order of the Board.

GEORGE RUDDLE,
March 22nd, 1920. General Superintendent and Secretary.

Gloucestershire Royal Infirmary and EYE INSTITUTION.—Applications are invited for the posts of HOUSE PHYSICIAN and ASSISTANT HOUSE SURGEON (Males). The appointments are for six months, which may be extended for similar periods by re-election from time to time.

Salaries at the rate of £175 and £150 per annum respectively, with board, residence, and laundry.

Candidates should send in their applications, stating age, and accompanied by not less than three testimonials of recent date, to the Secretary.

These posts are open to Senior Students who are about to become qualified.

The elected candidates will be required to enter upon their duties at once.

Gloucester, March 23rd, 1920. G. HURFORD, Secretary.

Monmouthshire County Council.— LADY ASSISTANT MEDICAL OFFICER.—The Council invite applications from Female registered Medical Practitioners for the appointment of Assistant Medical Officer for duties mainly in connexion with the Council's scheme of Maternity and Infant Welfare.

Salary £500 per annum, rising by annual increments of £25 to £700, with necessary travelling and out-of-pocket expenses.

The successful candidate will be required to act under the immediate direction and supervision of the County Medical Officer, to devote her whole time to the service of the Council, and to reside within such place as the Council may determine.

A schedule of the duties to be performed, together with conditions of appointment and a form of application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by the 7th April, 1920. D. ROCYN JONES, County Medical Officer.

County Hall, Newport, Mon., 22nd March, 1920.

Surrey County Council.—Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH.—The Surrey County Council invite applications for the appointment of an Assistant Medical Officer of Health at a salary, based on existing economic conditions, of £600 per annum, with reasonable travelling expenses.

Candidates must be registered Medical Practitioners, not over forty years of age, with Public Health qualifications. Preference will be given to those who have had practical experience of the work of a Medical Officer of Health.

The officer appointed will be required to assist generally in the work of a Public Health Department under the supervision and control of the County Medical Officer of Health, and to devote his whole time to his official duties.

The appointment will be held during the pleasure of the Council, be subject to a quarter's notice by the person appointed, and will not carry with it any right to a superannuation allowance.

Applications, stating age, qualifications, and previous experience, together with copies of not more than three recent testimonials, and endorsed "Assistant Medical Officer," must be received by the undersigned not later than 6th April, 1920. Selected candidates will be interviewed on 20th April, 1920. Canvassing is prohibited.

T. W. WEEDING, Clerk of the Council.
Dated this 17th day of March, 1920.

Birkenhead Borough Hospital.—Wanted, fully qualified SENIOR and JUNIOR HOUSE SURGEONS (Male). Salary £200 and £170, with board and lodging. Applications, with testimonials, to be sent in at once, Chairman of Weekly Board.

Norfolk and Norwich Hospital,

NORWICH.

CASUALTY OFFICER (Male), in charge of fifty Surgical beds, required at the beginning of April.

Salary £200, with board, residence, and laundry.

Candidates, who must possess registered qualifications, should forward applications, stating age, nationality, &c., together with copies of testimonials, as soon as possible, to the undersigned.

12th March, 1920. FRANK INCH, Secretary.

Stockport Infirmary.—Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER. The gentleman appointed must be duly qualified in Medicine and Surgery, and registered under the Medical Acts. Salary £200 per annum, with board and apartments.

Applications, stating age, qualifications, and experience, with copies of testimonials, stating earliest day duties could be commenced, to be addressed to the undersigned.

EDWIN J. PEARCE, Secretary-Supt.

The Royal National Hospital for CONSUMPTION AND DISEASES OF THE CHEST, Ventnor, Isle of Wight.—A Male ASSISTANT RESIDENT MEDICAL OFFICER is required to take up duties at an early date. Salary £300 per annum, with board and lodging in the Hospital. Every candidate should be doubly qualified, registered, and unmarried, and should have knowledge of Bacteriological methods. Applications, stating age and qualifications (with one copy of three recent testimonials), may be sent at once to the Secretary, R.N.H.C., 18, Buckingham-street, Strand, London, W.C. 2.

Borough of Plymouth.—Assistant TUBERCULOSIS OFFICER.—Applications are invited for the appointment of whole-time Assistant Tuberculosis Officer, who will act primarily as Medical Officer in charge of the Udal Torre Sanatorium, Yelverton, and will be required to reside at Yelverton. Candidates must have had special experience in the Institutional treatment of Tuberculosis.

Salary £500 per annum.

Applications, stating age, qualifications, experience, &c., accompanied by copies of three recent testimonials, must reach me not later than the 12th April, 1920. O. HALL, Medical Officer of Health.

Town Hall, Stonehouse, Plymouth.

Manchester Hospital for Consumption and DISEASES of the THROAT and CHEST.—Wanted, a RESIDENT MEDICAL OFFICER for the In-patient Department, Bowdon, Cheshire. The duties include attendance on certain days at the Out-patient Department in Manchester and operations in the Throat Department of the Hospital. Candidates must be registered. Salary £350 per annum, with board, apartments, washing, and railway contract.

Applications, with copies of testimonials, to be sent in not later than April 9th to C. W. HUNT, Secretary.

Hardman-street, Deansgate, Manchester.

Ancoats Hospital, Manchester.

RESIDENT SURGICAL OFFICER (Male) required, to commence on or about April 15th next. Candidates must be duly qualified and registered. Salary £200 per annum.

For six months.

Applications, stating full particulars, to be forwarded to the undersigned, together with testimonials, by Monday, 5th April.

By order.

HEREERT J. DAFFORNE, Secretary.

Borough of Swindon.—Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH.—The Corporation of Swindon invite applications from fully qualified Medical Practitioners (Male or Female) for the position of Assistant Medical Officer of Health, whose principal duties will be the Medical Inspection and Treatment of School Children and the work of Maternity and Child Welfare, at a commencing salary of £650 per annum, rising by annual increments of £50 to £750 per annum.

The person appointed will be required to devote the whole of his or her time to the duties of the office, and will not be allowed to engage in private practice, also to act under the superintendence of the Medical Officer of Health.

Candidates must have held a resident appointment at a recognised Eye Hospital for a period of not less than six months, and the person appointed should be an expert Refractionist, and able to undertake the work of a School Oculist.

Other conditions being equal, preference will be given to candidates possessing a Diploma in Public Health, and special experience in the X-Ray Treatment of Ringworm.

Excellent opportunities present themselves for gaining experience in the working of a modern Public Health Department, together with facilities for Pathological Research. The appointment will be terminable by three months' notice on either side.

Copies of definition of duties and forms of application may be obtained from the Medical Officer of Health, 61, Eastcott-hill, Swindon.

Applications, accompanied by copies of three recent testimonials, to reach the undersigned not later than Monday, the 12th April next, endorsed "Assistant Medical Officer of Health."

ROBT. HILTON, Town Clerk.

Town Hall, Swindon, 24th March, 1920.

Hereford County and City Mental HOSPITAL.—Wanted, a SECOND ASSISTANT MEDICAL OFFICER. Salary commencing £350 per annum, all found. Apply to Medical Superintendent.

Swansea General and Eye Hospital (beds 250).—HOUSE SURGEON (JUNIOR) wanted. Salary £200 per annum. Candidates, who must be qualified, to apply to the undersigned. Testimonials required. W. D. HUGHES, Secretary.

Manchester Royal Eye Hospital.—JUNIOR HOUSE SURGEON required to enter duty April 15th. Salary £120, board and residence. Applications to be addressed to the Chairman of the Board of Management.

W. S. PROPHET, Secretary.

Royal Berks Hospital (220 beds).—Wanted, a HOUSE SURGEON, who must be fully qualified and registered. Salary £200 a year, with board, residence, and laundry. The appointment is for six months. Applications, with copies of recent testimonials, should be addressed to the undersigned.

27th March, 1920. HERMAN BURNEY, Secretary.

Glamorgan County Asylum, Bridgend.

JUNIOR ASSISTANT MEDICAL OFFICER required. Commencing salary (after deductions according to the Asylums Officers' Superannuation Act, 1909) £350, rising to £400 by annual increments of £25, with board, apartments, washing, and attendance.

Applications, stating qualifications, age, and nationality, with copies of recent testimonials, to be sent to the Medical Superintendent.

North Ormesby Hospital, Middlesbrough.—ASSISTANT HOUSE SURGEON required. Candidates must be duly qualified and registered. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, together with copies of three testimonials, should be sent to the undersigned.

A. STANLEY BRUNT, Secretary-Superintendent.

General Hospital, Nottingham.—Wanted, CASUALTY HOUSE SURGEON. Appointment for six months. Salary at the rate of £150 a year, with board, residence, and laundry. Candidates are requested to send testimonials, with particulars as to age, qualifications, and experience, to the undersigned not later than Thursday, April 8th. Duties to commence on or about Monday, April 19th. By order.

P. M. MACCOLL, House Governor.

The Central Midwives Board for Ireland invite applications from registered Medical Practitioners, men or women (stating special qualifications), who are willing to serve and act as Examiners in Midwifery when required by the Board.—Full particulars can be obtained from the Secretary, Central Midwives Board, 33, St. Stephen's Green, Dublin.

The Governments of the Straits Settlements and FEDERATED MALAY STATES require the services of Thirty-three MEDICAL OFFICERS. The salary offered is $440 a month for the first year, $460 for the second, and $480 for the third year.

In all cases the appointments are on probation for the first three years, after which Medical Officers may be placed on the permanent and pensionable establishment. Subject to passing a strict efficiency bar before rising above $600 per month, salaries will thenceforward be at the rate of $500 a month, rising by annual increments of $25 a month to $800 a month. Promotion to posts above this maximum will be by selection.

Officers having Specialist qualifications of an approved type will enter the scale of salary at $550, rising by $25 a year to $600 per month during the first three years; after which, if their appointments are made permanent and they pass the efficiency test, their salary will rise, as in other cases, to $800 a month.

No duty allowance is paid; there is at present a strictly temporary bonus, to meet the increased cost of living, of 10 per cent. on the salary, payable during service in Malaya only. The exchange value of the dollar is fixed by Government at 2s. 4d. This rate is liable to alteration, but has remained constant for the past fourteen years.

Candidates must be Graduates of one of the British Universities, or hold the qualifications of the College of Surgeons and Physicians of London, Edinburgh, or Ireland, and in some cases a diploma in Public Health. If they have not already done so, they will be required to attend a course of instruction at the London or Liverpool School of Tropical Medicine either before embarkation or during their first leave of absence in Europe. Their whole time will be at the disposal of the Government, and no private practice is allowed. The duties will be generally those of a House Surgeon attached to any of the Hospitals in the Malay Peninsula and any other duties on which in the public interest it may be desirable to employ them. Free passages (second-class by mail or first-class by other vessel) are given, with half salary from date of embarkation.

Candidates of over thirty-seven years of age will not be considered for appointment on the above terms. They may, however, be engaged on three years' agreement, renewable by consent of both parties, with salary commencing at $600 to $700 a month (according to qualifications) and rising annually by $25 a month. Such appointments will not be pensionable, and no prospect can be held out of promotion to the highest posts in the Medical Service. A bonus of two months' salary, however, will be payable for each completed year's service on termination of agreement or extended agreement.

Applications for these posts should be addressed to the Assistant Private Secretary (Appointments), Colonial Office, Downing-street, London, S.W. 1.

House Surgeon wanted for Perth ROYAL INFIRMARY. Salary £6 6s. per week, with board and residence. Applications, with testimonials, to be made to Mr. J. C. CAMERON, Solicitor, Perth.

Ministry of Pensions.— Bellahouston HOSPITAL, Glasgow.—Applications are invited for the post of RESIDENT MEDICAL OFFICER (three required) at a salary of £250 per annum, with board and residence. Preference will be given to ex-Service candidates. Apply, enclosing references, to Resident Medical Superintendent.

The Secretary of State for the Colonies is prepared to receive applications for the post of ASSISTANT MEDICAL OFFICER, British Guiana.

Salary £400 per annum, rising to £500 by annual increments of £25. There are only three appointments in this Junior Grade, and there are thirty-one appointments in Grades with salaries from £500 to £700 to which officers will be promoted from the Junior Grade as vacancies occur.

Officers are allowed private practice when acting in a Medical District. When attached to an institution at which private practice is not allowed, plainly furnished bachelor quarters are provided. The Senior officers at such institutions receive duty allowances varying from £30 to £300 per annum.

The appointment is for a term of two years, at the end of which time the officer may, if his service has been satisfactory, be appointed to the permanent and pensionable establishment.

A free passage to the Colony is provided.

Further particulars and forms of application can be obtained from the Assistant Private Secretary (Appointments), Colonial Office, S.W. 1.

No testimonials should be forwarded until an application form has been received from the Colonial Office.

Ship's Surgeon. — Messrs. Elder Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited, Colonial House, Liverpool.

West Africa.—Gold Coast Colony.— First-class Appointment at well-equipped Mining Station now open to Medical Officer with Tropical knowledge and experience.

Apply by letter to Dr. W. A. Aikin, 66, Bedford-gardens, Kensington, W. 8.

Wanted, a Woman Assistant to a Woman Doctor in the South-West of London. Knowledge of Children and Maternity necessary.—Address, No. 918, THE LANCET Office, 423, Strand, W.C. 2.

Locum Tenens Provided

at short notice.

Apply to Mr. PERCIVAL TURNER,

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4 & 5, ADAM STREET, ADELPHI, STRAND, W.C. 2.

Telegrams: Epsomian, London. Telephone: Gerrard 399.

After 5 P.M.—Tel. Epsom 695.

Locums.—Lee & Martin, Ltd.,

71, TEMPLE ROW, BIRMINGHAM.

Telegrams: "LOCUM, BIRMINGHAM." Telephone: 1116 CENTRAL.

NOTE Change of Address.

Locum Tenens Provided.

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Telegrams: "Instruments, London." Telephone: 5240 City (3 lines).

Evening Work wanted in London. Experienced in General Practice.—Address, No. 908, THE LANCET Office, 423, Strand, W.C. 2.

Ex-Captain, R.A.M.C., wishes Work in London. Recently demobilised; experienced in General Practice. Free afternoons and evenings and week-ends. War service in France.—Address, No. 914, THE LANCET Office, 423, Strand, W.C. 2.

Experienced Practitioner can undertake Evening Work in London.—Address, No. 915, THE LANCET Office, 423, Strand, W.C. 2.

Medical Man, doubly qualified, fair general experience, is open for engagement as LOCUM or TEMPORARY ASSISTANT, where there is little night work.—Address, No. 922, THE LANCET Office, 423, Strand, W.C. 2

Doctor.—House Surgeon of a London Hospital desires post as LOCUM for House Surgeon, Resident Medical Officer, or Asylum.—Address, No. 924, THE LANCET Office, 423, Strand, W.C. 2.

Surgeon, Edinburgh Graduate, reading for the Fellowship, desires post in Asylum Hospital or Poor-law Institution. (Time for reading essential.) Much experience in operative surgery.—Reply, stating salary, to No. 923, THE LANCET Office, 423, Strand, W.C. 2.

Lady Dispenser (Hall), 2 years' experience with Doctor, desires similar post.—Miss I. Oliver, Felden, Boxmoor, Herts.

Lady, with experience in Nursing and Secretarial work, seeks post with Doctor in London.—Address, No. 909, THE LANCET Office, 423, Strand, W.C. 2.

Young Lady desires post as Private SECRETARY. Shorthand, typing. Good experience. Excellent references.—Address, No. 910, THE LANCET Office, 423, Strand, W.C. 2.

Nurse requires Private Nursing Eye Work (Moorfields trained).—Address, No. 917, THE LANCET Office, 423, Strand, W C. 2.

Lady, fully certified Nurse, seeks post as ATTENDANT and SECRETARY to Doctor during consulting hours. Manchester district. Excellent testimonials.—Address, No. 912, THE LANCET Office, 423, Strand, W.C. 2.

Lady Secretary and Correspondent for Medical Man or Specialist in London. Seven years' experience. Knowledge of British Spas Treatments. Good typist and interviewer. Used to position of responsibility. Excellent references from present employer.—Miss Picton-Prout, 93, Kingsway, London.

Required, in London or Suburbs, a General PRACTICE, with Panel. Receipts not less than £1000 per annum.—Send full particulars, in confidence, to "A," care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Wanted in London or near, General PRACTICE of £1000 a year or more. Applicant is prepared to buy at once, and has ample means.—Apply, No. 3931, Mr. Percival Turner, 4, Adam-street, Adelphi, Strand, W.C. 2.

Wanted by M.B., a large Panel PRACTICE in London. Income £2000 up.—Apply, Blundell & Co., Walter House, 418–422, Strand, W.C. 2.

Wanted, Practice or Partnership with early Succession. Manufacturing or Country Town. With or without panel. Receipts £1500 or over. Scope for Surgery.—Address, No. 920, THE LANCET Office, 423, Strand, W.C. 2.

Wanted at once, Country Practice producing over £1000 per annum. Must have good house and garden.—Send full details, in confidence, to M.B., care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Wanted, a Practice in Cornwall, Devon, or adjacent county, returning £600–£1000 a year, by experienced Practitioner ready to purchase at once.—Details, in confidence, to 5673, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Wanted, Practice or Partnership returning over £1000 a year in residential district in South of England by experienced well-qualified Practitioner with ample means and ready to buy at once.—Details, in confidence, No. 4723, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Wanted, in Southern, Midland, or Western Counties, good Middle-class PRACTICE yielding from £600 (with scope) to £1500 a year. Small house with garden would suit, but larger not objected to. Ample capital available.—Apply, Peacock & Hadley, 19, Craven-street, Strand, W.C. 2. (No charge unless sale effected.)

Wanted in Bournemouth or near, a good General PRACTICE by experienced Practitioner retiring from a large practice in order to settle on the coast. Income of at least £1500 a year required; larger preferred. Capital ready.—Details, in confidence, to 5261, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Wanted, Partnership, or Assistantship with view to former, by Cambridge Graduate. Conjoint. Over four years R.A.M.C. (T.F.). Married. Age thirty-two. Three years hospital resident up to December, 1914. N.W. England, preferably Yorks. Country town or country.—Address, No. 921, THE LANCET Office, 423, Strand, W.C. 2.

Wanted, Practices and Partnerships. Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (Estbd. 100 years), are in urgent need of Practices and Partnerships for several of their Clients who are anxious to settle down at once.—Send full particulars, in confidence, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Wanted by F.R.C.S., aged 33, a PRACTICE or PARTNERSHIP in Midlands or South, with scope for Surgery. Income £800 up.—Apply, Blundell & Co., Walter House, 418-422, Strand, W.C.2.

Wanted at once, a Partnership in a Hunting District. Income not less than £1500 per annum. Free to negotiate.—Send full details, in confidence, to "D." care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Wanted in London or Suburbs, Partnership or Practice with Panel. Income required not less than £1000 per annum. Free to settle at once. Can put £500 down and balance by arrangement.—Send full details, in confidence, to M.B., care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

North of England.—Partner wanted with Surgical experience in Practice doing over £3000 a year. Half Share for £2000. Preliminary Assistantship for mutual satisfaction.—Address, No. 911, THE LANCET Office, 423, Strand, W.C. 2.

Lincs.—A Third Partner required for a General Practice situated in a large Town. Average receipts £6000 per annum. Panel list 2400. Fees 3s. 9d. upwards. House available. Premium one and three-quarter years' purchase for One-third Share.—Quote Folio 1145, Arnold & Sons, Transfer Dept., 6, Giltspur street, London, E.C. 1 (opposite St. Bartholomew's Hospital)

Hydro, Rest Cure, &c.—A Lady Nurse, having purchased freehold of a famous establishment in an Allied State, seeks a PARTNER or Financial Assistance for further development. Capital required £5000 to £10,000. Ideal climate. Suit Medical Man or Officer.—Apply, Hydro, care of Mr. P. Turner, 4, Adam-street, Strand, W.C. 2.

Partnership.—Over £4000 a year.— Junior wanted to replace a deceased partner in General Practice in large Seaport Town in North. Visits 3s. 6d. to 15s. Midwifery 2 to 5 guineas. House and garden available. One-third Share for Sale. Panel over 3000. Premium only £1000.—Apply, 6741, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Partnership.—£3500 a year in good-class suburb of Midland Town. Panel 2000. Practice rapidly increasing. One-fifth Share for disposal at first, at one and a half years' purchase. Single man preferred.—Apply, No. 6727, Mr. Percival Turner, 4, Adam-street, London, W.C. 2.

Partnership.—London.—£2400 a year, steadily increasing. Panel over 2400. House available. Third or Half Share for Sale. Partner retiring. Premium one and a half years' purchase. Personally known and recommended.—Apply, 6721, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Partnership.—£4000 a year.—Old-established Practice in Agricultural and Residential Town in North of England. Partner required to replace one retiring. One-fourth or One-third Share for Sale. Visiting fees 3s 6d. to 31s. 6d. Midwifery 2½ to 10 guineas. Panel 2000. Good hospital. Scope for Surgery. Single man preferred, as only rooms are available at present. —Apply, 6716, care of Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

For Disposal, Practices or Partner-SHIPS. — Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (Estbd. 100 years), have been instructed to privately dispose of a large number of really good Practices and Partnerships. Gentlemen are requested to state their requirements and amount of capital available. No charge to purchasers.—Address, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

For Disposal.—A really good Practice is not always to be had directly, but Mr. PERCIVAL TURNER (with forty years' personal experience) can generally offer applicants something suitable on being furnished with details of their requirements. Nearly all the best Practices are Sold by him without being advertised.—Full information free of charge on application, personally or by letter, to 4, Adam-street, Adelphi, Strand, W.C. 2.

£2000 Cash available for London or Suburbs.—A General PRACTICE required of not less than £2000 per annum. Must have large panel. Open to negotiate at once. —Send full particulars, in confidence, to "M," care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Lancashire.—£1000 a year.—Old-established PRACTICE in small Town. Vendor retiring through ill-health. Panel 1100. Same hands thirty years. Very little night work taken. Small house. Premium only £1050.—Apply, 6728, Mr. Percival Turner, 4, Adam-street, London, W.C. 2.

Death Vacancy.—East Coast Country Town, Scotland. Population 5000. Large Private and Panel PRACTICE, with appointments probably transferable. Present house available. Car kept. Convenient distance from large town. Education facilities good.—Apply to Messrs. James & George Collie, Advocates, 25, Union-street, Aberdeen.

To Purchasers.—Do not buy any Practice or Partnership without an investigation into books and other inquiries by an expert specially competent to conduct the same. Forty years' personal attention to such inquiries has given Mr. PERCIVAL TURNER an unique ability to advise in all cases.—Terms and full particulars free on application to 4, Adam-street, Adelphi, Strand, W.C.2. Telephone: 399 Gerrard. Telegram: Epsomian, London.

New Zealand.—Old-established unopposed PRACTICE in nice district. Suit two friends. Receipts £2600. Two good houses. Moderate premium.—Apply, Blundell & Co., Walter House, 418-422, Strand, W.C. 2.

Anglesey, Death Vacancy.—Goodwill of and Succession to the extensive General PRACTICE of the late Dr. Evan Williams J.P., of Green Hill, Llangefni. Prosperous Agricultural district. Appointments. Panel.—Apply, W. Thornton Jones, Solicitor, Bangor.

Unopposed Country Practice within few miles of South Coast. First-class residential district. Receipts last year about £2000, more this year from increased fees and panel. Good house and grounds; another available for partner or assistant. Half Share can be bought if desired.—Apply, Peacock & Hadley, 19, Craven street, Strand, W.C. 2.

West Riding.—A General Practice situated in a good district. Receipts over £1600. Panel list 1900. Fees 2s. 6d. upwards. Midwifery 1 to 5 guineas Population 50,000. Nice house, in central position, containing five bedrooms, &c., garage; no garden; rent £55 per annum. Premium £2000.—Quote Folio 1086, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Large Panel and Industrial Practice. South Coast. Share amounting to about £800 per annum for disposal. Panel 3000. Good fees. Premium one and a half years' purchase.—Lee & Martin, Ltd., 93, Hall-road, Handsworth, Birmingham.

London, N.—A General Practice situated in a thickly populated district producing over £1350 per annum. Panel list 1700. Fees 3s. 6d. upwards. Midwifery 2 guineas upwards. Ample scope to increase. Nice house, situated in a central position, containing four bedrooms, &c. (no garden); rent £50 per annum. Premium one and a half years' purchase.—Quote Folio 1187, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Death Vacancy.—Liverpool.—Very old-established Family PRACTICE of over £1000 a year in a good residential Suburb. Same hands over forty years. No panel taken. Good freehold house and grounds. Every investigation invited.—Apply immediately, No. 6738, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Lincs.—A General Practice situated in a small Country Town. Receipts £1900. Panel list 1000, increasing. Fees 3s. 6d. upwards. Midwifery £2 2s. upwards. Plenty of sport can be had. Nice house, containing four bedrooms, &c., detached surgery, garden, and garage; rent £35 per annum. Premium one and a half years' purchase, payable half down and the balance by arrangement.—Quote Folio 1189, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

North County.—Old-established Prac-TICE in best residential part of large Town. Non-panel and non-dispensing. Visits 7s. 6d. to 63s. Many at 21s. and over. Large house available; all sport. Hospital, &c., and good schools. Partnership introduction as long as desired. Vendor giving up general practice. Premium two years' purchase.—Apply, No. 6719, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

Residence, centre ' Bridgwater. Possession Lady Day. Luxuriously fitted. Electric, bath (h. & c.). Pleasure garden, cottage. Suit Doctor, School, Boarding. £1200. Doctor just vacated.—Squibbs, 388 Agents, Bridgwater.

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PATENTS AND DESIGNS ACT, 1907.

Notice is hereby given that Edward WALTER HOBBS, of 76, Bedford Hill, Balham, in the County of Surrey, seeks leave to Amend the Specification of Letters Patent No. 126457, granted to him for "Improvements in or Relating to Artificial Hands."

Particulars of the proposed amendment were set forth in the Illustrated Official Journal (Patents), issued on the 17th March, 1920.

Any person, or persons, may give notice of Opposition to the Amendment by leaving Patents Form No. 18 at the Patent Office, 25, Southampton Buildings, London, W.C. 2, within one calendar month from the date of the said journal.

W. TEMPLE FRANKS, Comptroller-General.
BOULT, WADE, and TENNANT,
111/112, Hatton Garden, E.C. 1, Patent Agents.

Wanted.—Half-subscription offered for THE LANCET, to be forwarded a week old, post-free.—P. W. Williams, 2, Holmer Mansions, Weston-s.-Mare.

Wanted to buy good Modern MICROSCOPES.—F. Davidson & Co., 29, Great Portland-street, W. 1.

Laboratory Dispersal.—Electric Centrifuge Steam Steriliser. Hot oven. Spectroscope. Chemicals.—Address, No. 916, THE LANCET Office, 423, Strand, W.C. 2.

STEVENS' AUCTION ROOMS (Estab. 1760).

A Sale by Auction is held every Friday, at 12.30, which affords first-class opportunities for the disposal or purchase of SCIENTIFIC, OPTICAL, and ELECTRICAL APPARATUS, Microscopes and Accessories, Telescopes, Surveying Instruments, Photographic Cameras and Lenses, Cinematographs and Films, Lanterns and Slides, Lathes and Tools, Books and Miscellaneous Property. Frequent Sales of Natural History and Ethnological Specimens, Curiosities, &c., are also held.

Catalogues and terms for selling will be forwarded on application to Mr. J. C. STEVENS, 38, King-street, Covent Garden, London, W.C. 2.

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No confinement to the house when disabled.

For full details apply, stating date of birth and amount of weekly compensation required, to:

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Transfer Dept., 6, Giltspur-street, London, E.C. 1.
(Opposite St. Bartholomew's Hospital.)

Received too Late for Classification.

The Grocers' Company's Scholarships. With the object of encouraging original research in Sanitary Science, the Grocers' Company offer Two Scholarships, each of £300 a year, with an allowance to meet the cost of apparatus and other expenses in connexion with the work, tenable for one year, but renewable for a second or third year, subject to the conditions of the scheme under which they are established.

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